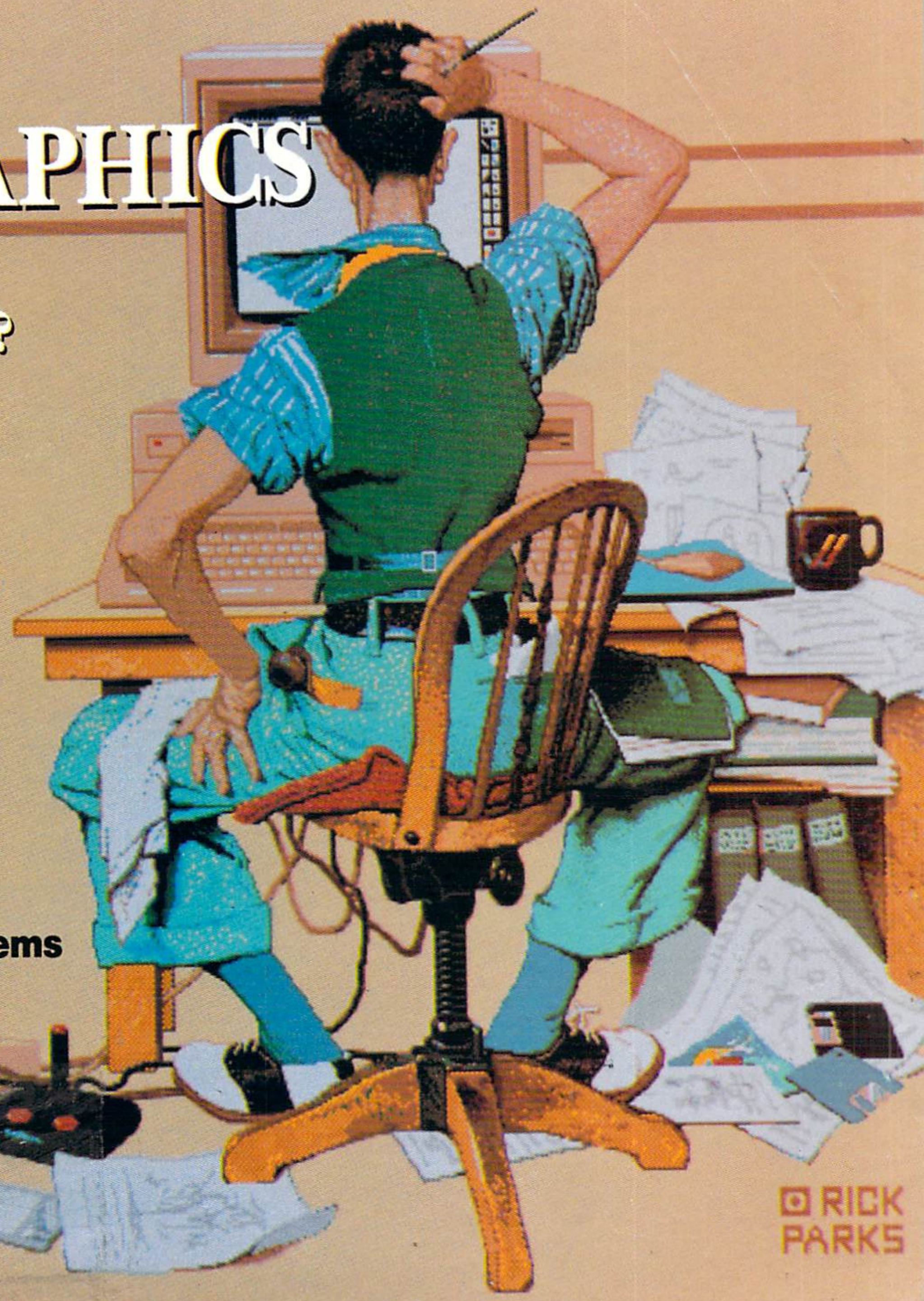
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urvival Kit
—see p. 44

AMIGA WORLD

May 1990
U.S.A. $3.95
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Publication



AMIGA GRAPHICS

s The Artist Still
Faced With A Dilemma"?

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igi-View 4.0

uper Screens/Poor Prints?
ardcopy Hints For
igh-Quality Graphics

ffordable' Color Scanning?
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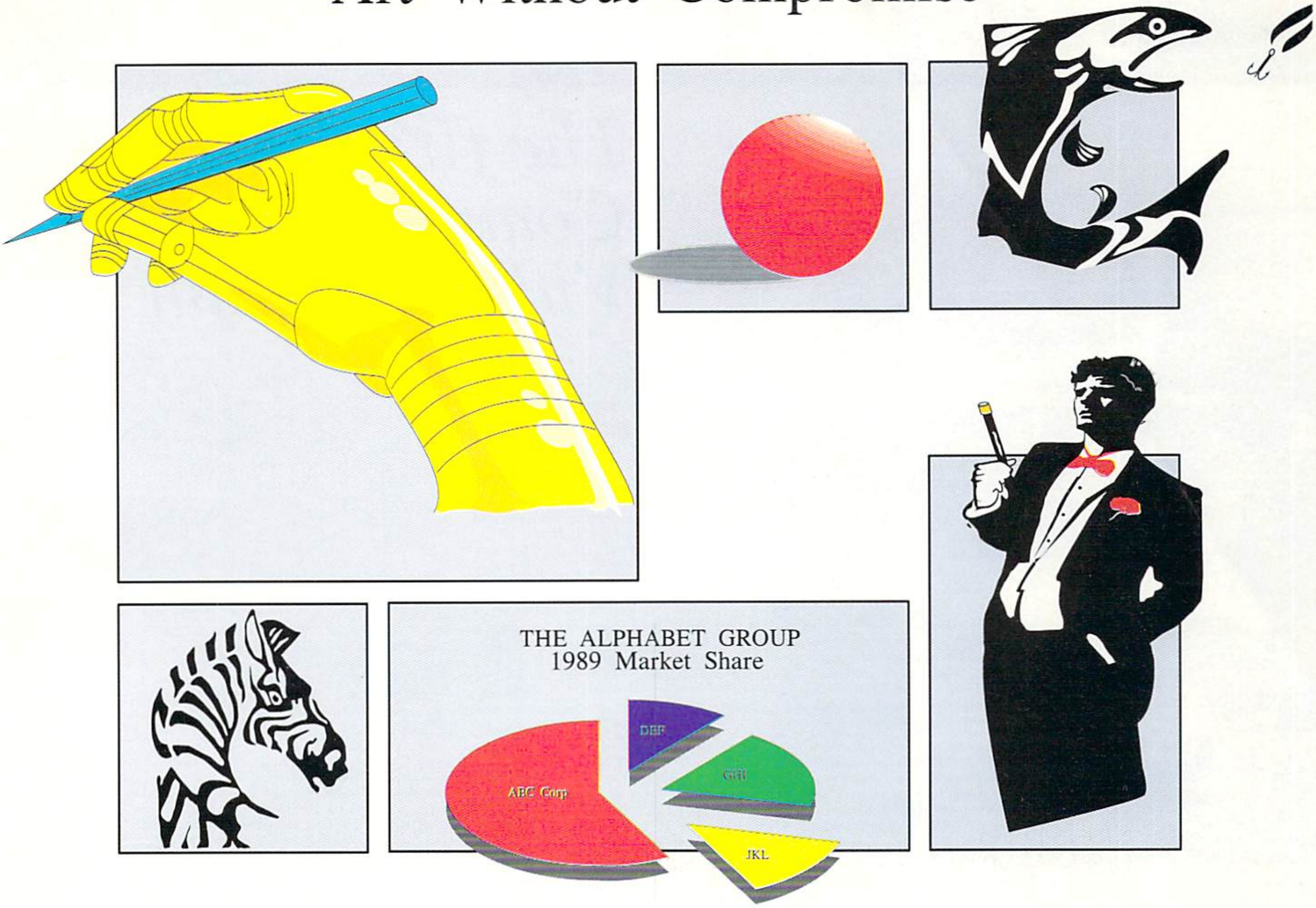
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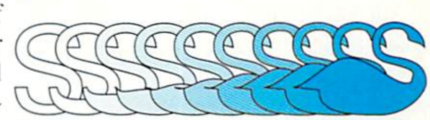


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Professional Draw 2.0 is just $295. Registered owners of Professional Draw 1.0 can upgrade to version 2.0 for $60.00. Please call Gold Disk at 1-800-387-8192. In Canada, (416) 828-0913.

This entire ad was produced and color separated using Professional Draw 2.0 and Professional Page. Black and white art work provided courtesy of AlohaFonts, Fair Oaks, CA.

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Then



Now

SHOWMAKER

Up until now, making a "Desktop Video" with your Amiga meant you had a very crowded desktop. You needed editing VCRs, single frame controllers, and a lot of money and patience. It just wasn't possible to record a finished video straight from your Amiga. You could create the animations, stills, sound effects, and music, but there was no way to bring it all together, and most importantly, to easily synchronize audio and video. Until now...

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ShowMaker, the first with features like:

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- Built-in Video Titling for use over animation or live video
- VTR and LaserDisc control
- Genlock control

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* Patent Pending

VOLUME 6, NUMBER 5

MAY 1990

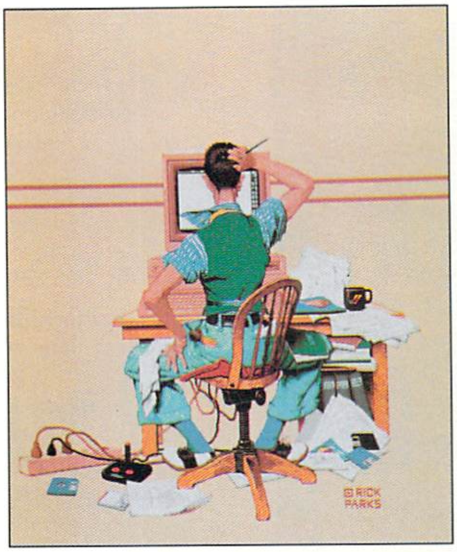
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FEATURES

ARTICLES

COLUMNS

DEPARTMENTS



Novice or professional artist, enthusiast or just graphics dabbler, you've all probably been in the position of our man on the cover (above). That's why the title of the work, fittingly, is "Self-Portrait: The Artist Was Faced With A Dilemma." And, yes, you recognized it: Norman Rockwell in one of his most famous Saturday Evening Post *covers. But, of course, it* isn't *NR (they didn't have Amigas—or even Altairs or Vic 20s—back on October 8, 1938). Artist Rick Parks did this take-off on his Amiga using DeluxePaint III. (And, no, he* didn't *digitize the original!)*

REVIEWS

GAMES

COVER ILLUSTRATION BY RICK PARKS

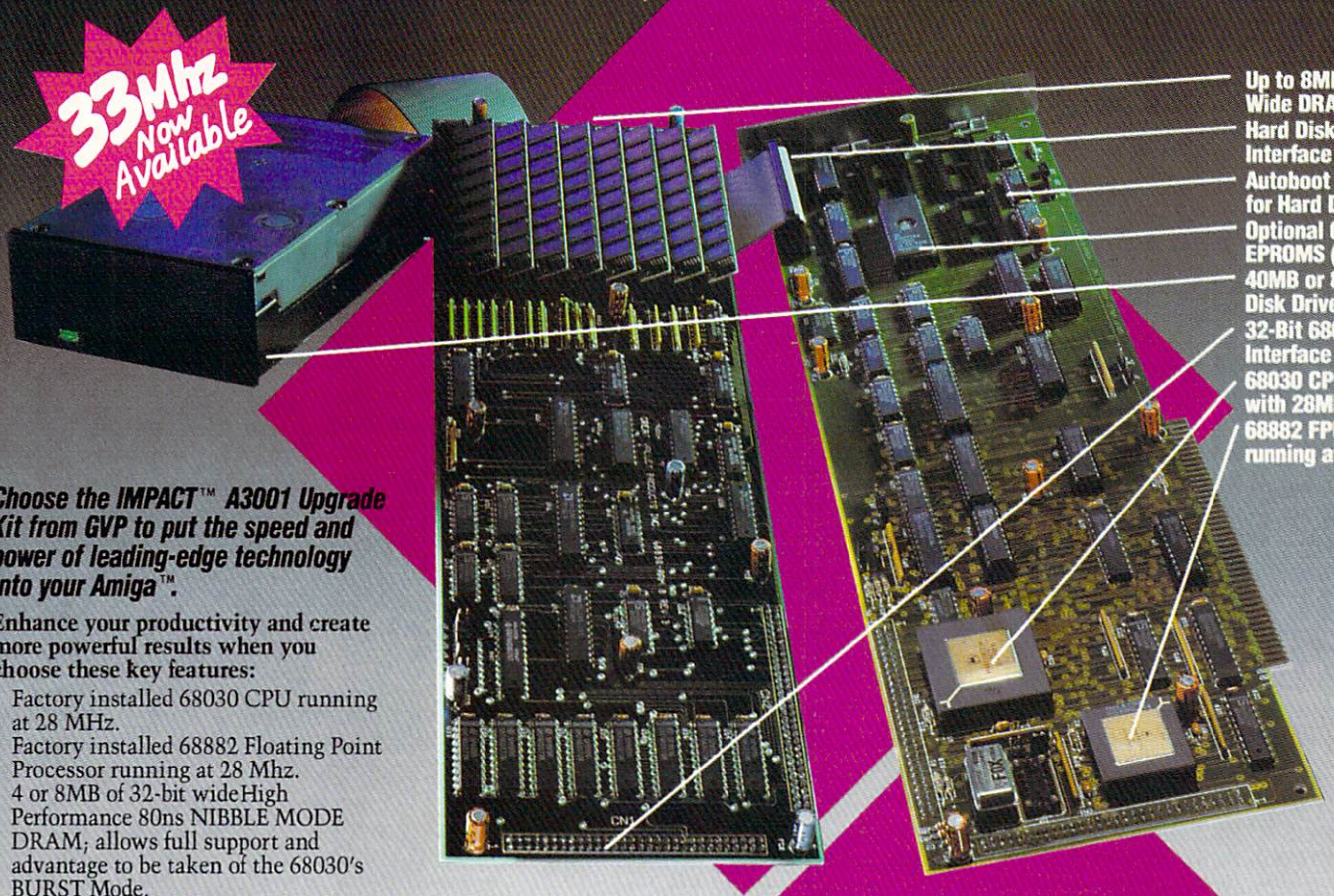
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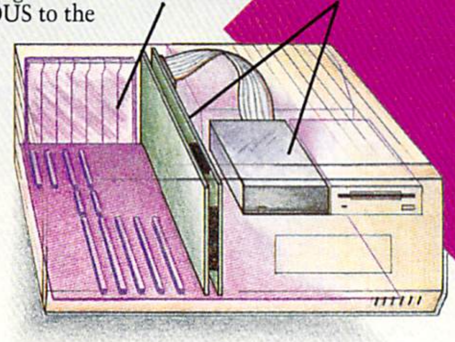
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CHIEF CONCERNS

A balanced view



AMIGA OWNERS MUST be an honest lot. After all, some have written to us complaining that this column only says nice things about the Amiga while it says mean things about almost everything else.

They're right. The Amiga may be great, but it is not perfect. In fact, the Amiga's technological uniqueness is waning and pretty soon people are going to need new reasons for buying it.

They used to buy the Amiga because it excelled at the vertical applications the big boys had not yet bothered to target. It sold because of video technology and NTSC compatibility. It sold because it tied easily to MIDI devices. It sold because of superior graphics with 4096 colors, and the fact that it had the address space and sheer horsepower to drive them. And it sold because of products such as DPaint and Digi-Paint to tap that graphics power.

For a long time the Amiga won every technological argument. It had multiprocessing, multitasking, and really nice resolution. This was pretty amazing stuff four years ago.

Were it not for the big boys, the Amiga would probably survive this way forever, selling slowly and steadily. But, something very serious is happening: The big boys with their big PR and marketing machines are entering Amiga territory. With both Unix and OS/2, they are discovering multitasking and graphical user interfaces. But most disturbing of all, they are discovering Amiga applications.

Unlike four years ago, IBM now has VGA graphics standards and the optional 8514/A with super hi-res color graphics. Apple has 24-bit graphics, color (finally!), 68030s, and even some speedy coprocessors.

In all this time, the Amiga has just about stood still. Sure it is still cheap, but is it still the best? In some areas it isn't. It needs higher resolution. It needs more industry standard software. It needs better networking. It needs to exceed the 9MB barrier. It needs to be faster.

This is a competitive challenge. While it is all a bit frightening, it also gives us impetus to change and to improve. Such improvements are important because they will give the Amiga new life and potential users new reasons to buy it.

Fortunately, Commodore is working feverishly on some improvements that will, once again, leave the competition in its dust. It is on the verge of introducing significantly improved hardware and a new operating system while also rallying the support of mainstream software players.

Developers, too, need to kick in to keep the Amiga from an early grave. We need software that doesn't guru, and more companies such as New Horizons that are willing to stick their necks out with bug-free guarantees. Software has to stop crashing, mainstream applications have to be ported, and new mind-blowing applications have to be written.

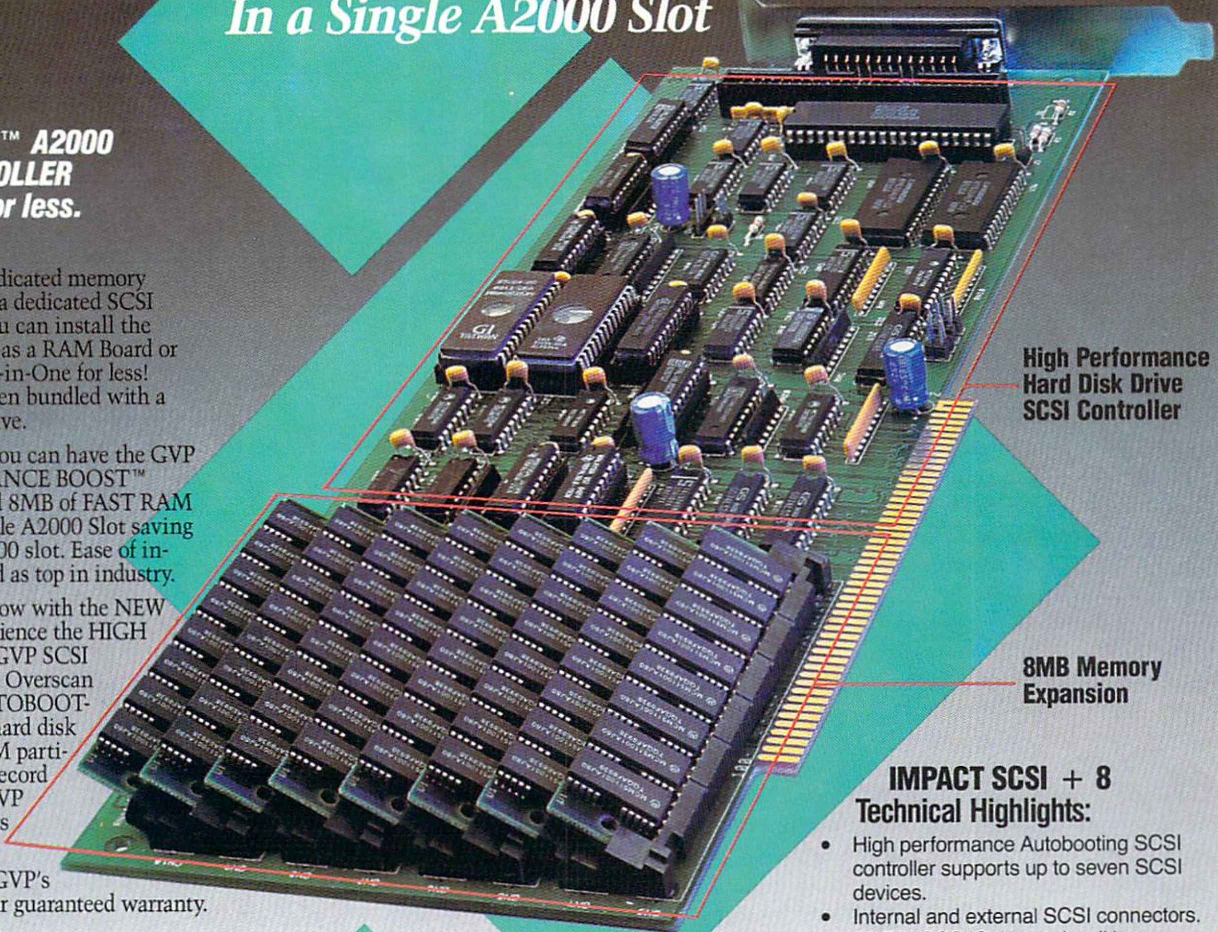
The Amiga also has to get away from the Rodney Dangerfield syndrome. We've got to get guys like Bill Gates to stop calling it an orphan. And we have got to get the press to take it seriously.

When I started this piece, I was depressed thinking that the Amiga had lost its edge, but then Lou Wallace showed me the *AmigaWorld* Animation Video he had just finished. Five minutes into it, I realized that the Amiga has still got it because it has the most creative, inventive, and passionate group of users ever put on God's green earth. So let's maintain our present advantages and create new ones (right, Commodore?).

You know what? A lot of these things I've been ranting and raving about *are* starting to change. Not only is Commodore getting aggressive, but users are waking up. Your letters have been hitting publications with increasing frequency, gently reminding them of our machine. And with your help and your excitement things are going to keep right on changing. So when the Amiga hits another million unit milestone, you'll have only yourselves to thank. ■



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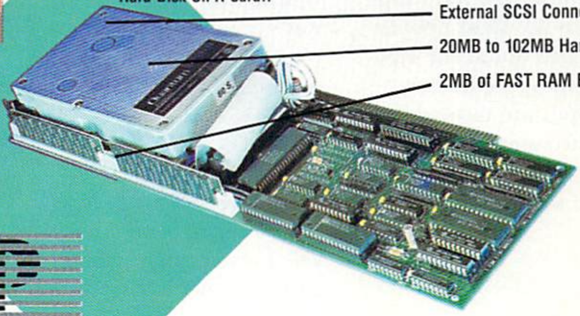


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REPARTEE

Comments, complaints, and concerns

from AmigaWorld *readers.*

Hooray for ADA

I WAS EXTREMELY happy to learn of the formation of the Amiga Developers Association. The timing seems to be perfect. The Amiga has a solid operating system, a most needed advertising campaign, and a crew at Commodore who is truly concerned about the growth and recognition of the Amiga computer.

Now that the ADA group is almost on its feet, I feel more confident about writing to other publications whenever they ignore the Amiga, or whenever they give credit to other computers when credit is due to the Amiga. I hope all Amiga users feel the same way and support ADA.

Jose E. Alvarez
Escanaba, MI

THANK YOU FOR getting the ball rolling with the ADA. There is another revolution that also needs a leader. The electronics industry is the prime offender in destroying the earth's ozone layer. By pressuring Commodore to stop any use of chloroflourocarbons (CFCs), the ADA can help save us all. Most people are concerned about the environment, but it seems that creative types are more apt to monitor the companies they will buy from. These too are the people who will recognize the Amiga's superior creative capacity. It logically follows that such people will choose the Amiga over machines produced using CFCs. If Commodore stops using CFCs, it will have a powerful theme to use in an advertising campaign.

Isaac Csandl
E. Stroudsburg, PA

Get Your Licks In

THE LAST LICKS page is a detriment to your magazine. So far, the cartoons have not been funny, and little useful information has appeared on the page. The look of the title/logo is so annoying that I flinch when I look at it. The "So What?!?" section in the Feb. '90 issue was uninformative, insulting, and useless. Your history of OS/2 and Windows is so busy mocking the Keystone Cop-like antics of IBM developers that it neglects to tell why clones are still the choice of the big boys.

I'm not an IBM lover; I have never bought an IBM or compatible. But I have worked with them, and the things they do, they do well.

Much of your Feb. '90 issue was very useful. But there's no reason to put in this largely gratuitous page. Kill it, please.

Brian Caulfield
Delmar, NY

I READ LAST Licks in your Jan. '90 issue, and I loved it! The format, the cartoon insert, and the news in this section all appealed to me very much. I hope to see more cartoons from Rich Tennant.

Jose E. Alvarez
Escanaba, MI

Notably So

WITH HIS proclamation that "Most importantly, computers allow non-musicians. . .to make noise" (Chief Concerns, p. 6, March 1990), Doug Barney tells us that the many fine professional-level Amiga programs are secondary to introductory ones. What? I thought the Amiga was a serious computer to be considered by professionals for serious work. I also object to the statement, "Computers have created more bad music. . ." Powerful products only magnify the user's capability: Bad musicians make bad music.

A product that lets an unskilled person appear to be good is a toy. A product that lets a skilled person become better is a tool.

Leen Tuk
Hamilton, Ontario, Canada

For the Love of Science

THIS LETTER IS in response to K. A. Ferguson ("In the Name of Science," Repartee, March '90, p. 8).

Historically, most complex scientific software code has been written in FORTRAN for mainframe computers. The advent of C and FORTRAN for the Amiga has opened an avenue for these programs to be ported to the Amiga.

AMIGA Tech will be porting many of the most popular scientific application codes to the Amiga. These programs will be released in versions with varying degrees of complexity, to fit the individual Amiga user's available memory. Upgrades to higher complexity will be extremely cheap.

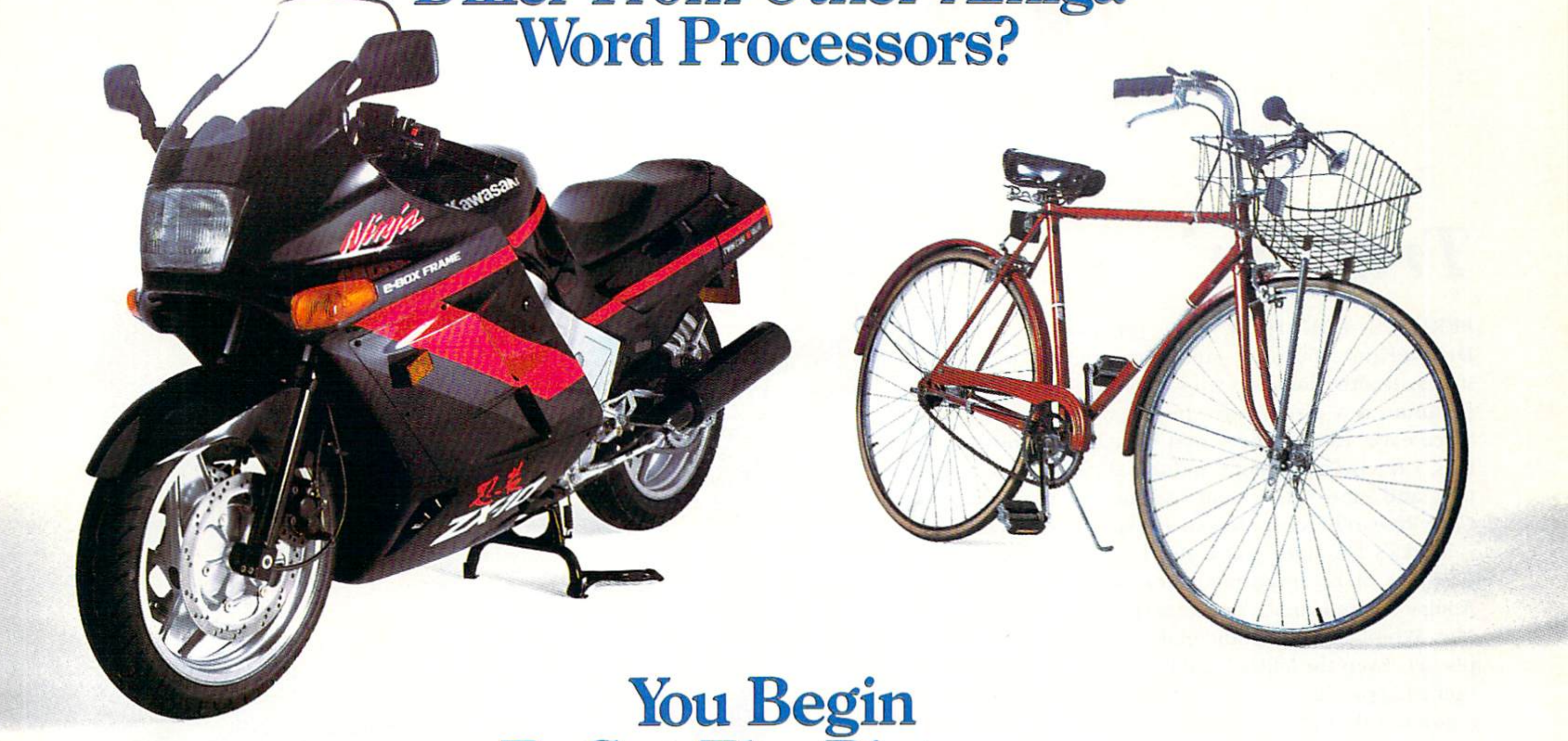
The first products planned to be released include a general-purpose 2-D plotting package, a general-purpose 3-D plotting package, and a general-purpose system-simulation package, YDOT. All products will use multicolor mid-res or interlace screens, will contain user-friendly data/device file requesters, and will be completely compatible with Workbench printer drivers.

For further information, contact: AMIGA Tech, PO Box 201, Los Altos, CA 94023-0201.

Patrick G. Bailey, Ph.D.
Los Altos, CA

Send your letters to: Repartee, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■

How Does New ProWrite 3.0 Differ From Other Amiga Word Processors?



You Begin To Get The Picture.

Beneath Its Elegant Design Lies A Word Processing Powerhouse.



Ease into the solid comfort of the ProWrite environment. Zip in your text and briskly format with intuitive menu and ruler controls. Now slip into high gear using the power of keyboard commands. Deftly cut, copy and paste on the fly, knowing the formidable 100,000-word spelling checker is checking as you type, and the vast thesaurus is standing by with over 300,000 cross references to fine-tune your ideas. Graceful multiple columns are at your fingertips with choice of snaking or parallel text flow. If you're really into performance, you can tackle tedious tasks with the touch of an F-key using macros. For you power users, the AREXX port awaits you. And ProWrite's print merge feature eagerly churns out those form letters.

So Intuitive, So Responsive, You've Got To Experience It To Believe It.

Your thoughts pour effortlessly onto the screen, then just as fluidly out to your printer, virtually unaware of anything between you and the printed page. (After all, what good are all those features if they're a distraction to use?) Even your swiftest typing can't outrun it. Wrap your text around a graphic and you're ready for the home stretch. Now it's time to print and you've got control over your printer's dot density, aspect ratio, and paper size. And ProWrite can print your printer-resident fonts with graphics in Pica, Elite, Condensed, and Wide—all on the same page. With ProWrite's flexibility, you can smooth out any rough spots—no matter what kind of printer you have.



With all these performance features and more, ProWrite stands in a class by itself as your power performer. And best of all, it stands on the shelf now at your favorite store.

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- Multiple columns with snaking or parallel text flow
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- Wrap text around pictures
- Multiple line headers and footers with Title Page option
- Macros, when used with AREXX
- AREXX port
- Hyphenate words with soft hyphens
- Tabs with left, center, right, or decimal alignment
- Defineable decimal tab alignment character
- Prints color or black and white printer-resident fonts and pictures at the same time
- Prints printer-resident fonts with any variety of Pica, Elite, Condensed, and Wide fonts at the same time
- Prints on any Preferences-based printer
- True "What you see is what you get" display
- Multiple fonts, sizes, styles, and colors
- Adjustable defaults for *all* program settings
- Comprehensive keyboard equivalents
- Select All command for document-wide changes
- Go to any page on command
- User-definable dictionary
- Up to ten documents can be open at once
- Undo and Redo commands
- Adjustable page sizes
- Print sideways or across paper perforation
- Print documents back-to-front, separate odd-even, or collated
- Line spacing in single, one and one half, and double
- Print to PostScript using optional PostScript module
- Adjust printer dot density
- Adjustable top, bottom, left, right, and binding margins
- Reduce or enlarge documents in one percent increments
- Adjust line spacing in one point increments
- Automatic space before and/or after paragraphs
- Automatic word look up
- Automatic page numbering with choice of five different formats
- Sort paragraphs from A to Z or Z to A
- Character, word, sentence, line, paragraph, picture, and page counts
- Six different date formats and two different time formats
- Computes average word and sentence length and readability grade level
- Insert current date and time either as fixed text or as an updating marker

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NEW HORIZONS

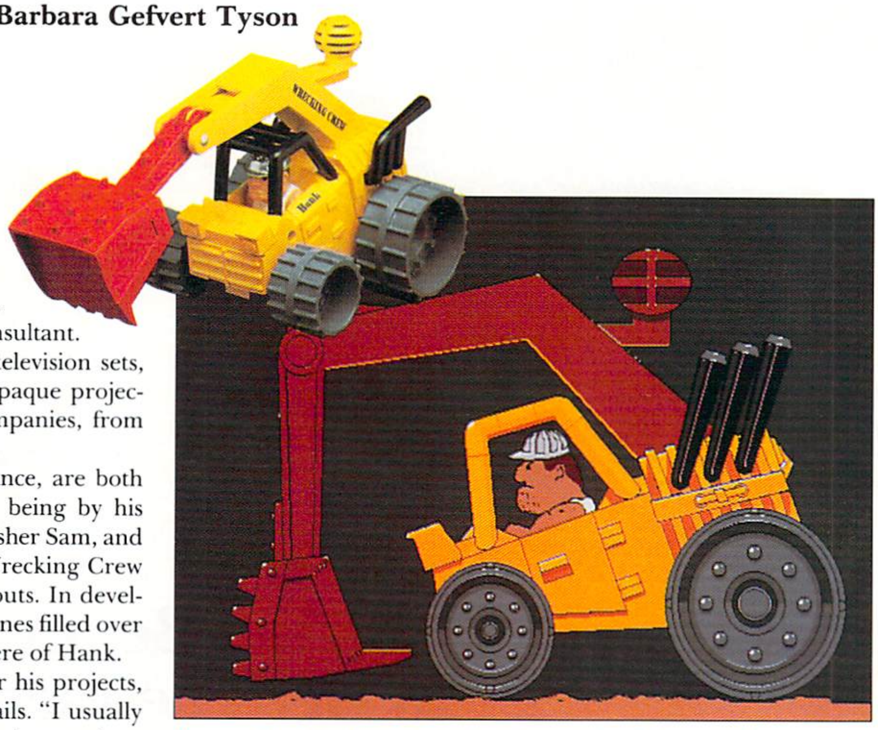
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NOTEPAD

Compiled by Barbara Gefvert Tyson

Truckin'



Hammer Hank in character-design stage on the Amiga, and (inset) posing in prototype form for the Tonka catalog.

PERHAPS YOU HAVE seen Johannes Gaston's DeluxePaint "output"—in electronics shops, toy stores, health clubs, or your place of employment. Johannes is a product-design and development consultant. Since early 1987, he has used his A1000 to design television sets, toys, exercise equipment, industrial control units, opaque projectors, and more. His clients include a variety of companies, from Cray Research/Computers to Tonka Corporation.

Tonka's Hammer Hank and his vehicle, for instance, are both products of his imagination that were helped into being by his Amiga. So are Hank's counterparts Basher Bart, Smasher Sam, and Max Whiplash, and all the buildings in the Tonka Wrecking Crew playset. Even the labels for the toys are ink-jet printouts. In developing the product line and defining the details, Johannes filled over a dozen disks with renderings like the one you see here of Hank.

Johannes starts out with conventional sketches for his projects, then renders them on the computer to focus on details. "I usually do several iterations of a product, tweaking proportions, colors, and shapes," says Johannes. "With DeluxePaint's Brush feature I can select a part of the drawing and stretch or compress it." The Amiga's color capacity lets him "try on" different colors and combinations quickly, with the client standing by. "The key to success in design work is to have both the client and designer know exactly what the product will look like," he notes. "With the Amiga, I can create such realism [and] help the client feel comfortable."

The Amiga is the only computer Johannes has ever owned. "Prior to the Amiga," he states, "I had not seen anything I could afford in terms of dollars or time needed for learning." *—BGT*

NEWSPAD

Go First Class

WASN'T IT GEORGE Bush who wanted to be remembered as the "education president?" Well, Commodore presidents just may beat him out. A recent donation of eight Amigas—2000s and 2500s—to Canada's Southern Alberta Institute of Technology (SAIT) in Calgary forms the foundation of the school's media production training. SAIT students are now learning sophisticated techniques in video and slide-show production, painting, animation, desktop publishing, music, and interactive instruction—Amiga style. The school plans to base a two-year Corporate Media Production program on the Commodore Media Centre, and to incorporate the center into its Cinema, Television, Stage, and Radio Arts program. Lab supervisor Dick Bourne is also willing to customize training for corporate clients.

Back in the US, the State University of New York at Albany will receive 40 Amigas for use in classrooms and courseware development. This fall, the school will beta test a calculus program being developed by a team that includes a designer of the HP 28-S calculator. "The Amiga gives us an ideal environment," says Math Department chair Tim Lance. "Our new Amiga facility will be the only site in which their material will be taught entirely in an interactive computer classroom."

Commodore is a participating sponsor of Tech 2000, the world's first interactive multimedia gallery. Located near DC's Washington Convention Center, Tech 2000 features advanced applications and demos by CBM and others.

CanDo a contest? Yes, say INOVAtronics and Southern Technologies, who will award a trip for two to AmiEXPO Germany in November to the developer of the "very best" CanDo application. In total, 58 prizes will be given to users and dealers. The deadline is August 31; for rules and an entry form, send a SASE to CanDo Contest, 2009 McKenzie, Suite 110, Carrollton, TX 75006.

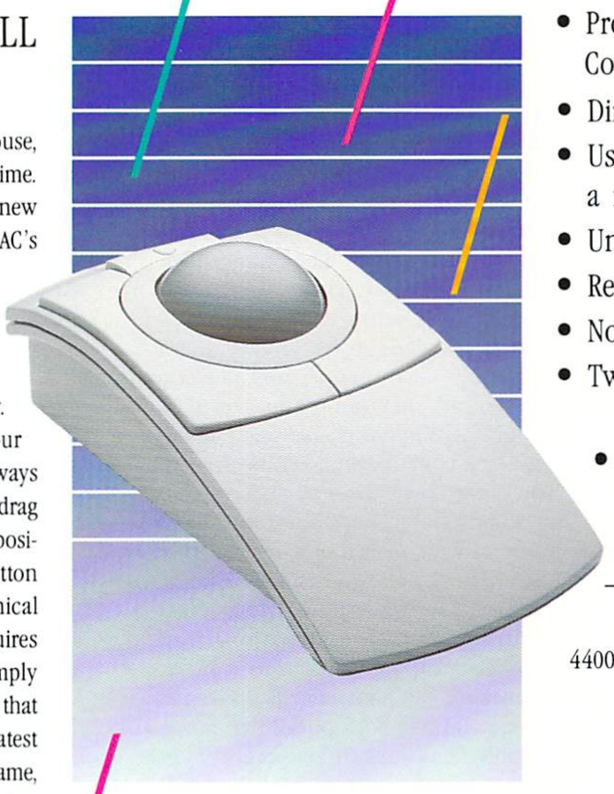
—BGT

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REVIEWS

DeluxeVideo III

CanDo

InterActor

Presenting . . .interactive video

By Geoffrey Williams

NO MATTER WHERE you find them—in mall kiosks, at point-of-sale displays, or in classrooms—interactive presentations are popular and effective because they let people explore information at their own pace and in their own way. And wherever you find the Amiga, you are more likely than ever to find it in the company of interactive authoring software. DeluxeVideo III, CanDo, and InterActor are three such packages. All handle presentation fundamentals, and with any of them you can create a basic interactive application in minutes.

At the foundation of any presentation are buttons that respond to mouse clicks by calling up either pictures, text, sounds, animations, or other screens full of buttons. Each of these programs provides an easy means for creating them (allowing use of DeluxePaint brushes as buttons), but when it comes to setting up sequences that respond to mouse clicks, the programs vary widely in both capability and ease of use.

In keeping with the spirit of interactivity, I have divided my review of these programs into topic segments so that you can explore and compare their capabilities and approaches with ease.

Interfaces Forward

When Electronic Arts released the original Deluxe Video, I and many others marveled at its graceful interface and groaned about its limitations. The latest version, **DeluxeVideo III**, offers enough power to fully complement the interface's intelligence.

The program represents your video script on screen as a storyboard topped by a timeline. To set up happenings at specific times, you simply place icons along the timeline (each Effect icon has arrows for start and end times). This approach makes it easy to see what happens when. Multiple tracks of events can occur simultaneously or overlap. Editing an icon is as simple as double-clicking on it and making changes in a requester, and you can drag, duplicate, and delete icons as well.

Script creation is very intuitive, and requesters guide you through the whole process. I would be hard pressed to imagine a more elegant and powerful interface.

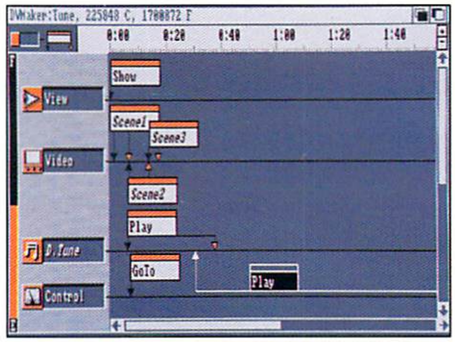
Overlapping the bottom of the **CanDo** screen is another partial screen containing a control panel. The panel slides up to make room for requesters and down to give you a better view of the screen. The Object gadgets let you create buttons, pull-down menus, and add requesters, sound, text, and animation to your program. While this approach lets you see what is happening on the screen as you create your presentation, it is not as good at letting you see how all the aspects of your program work together.

CanDo goes beyond simple interactive presentations and allows you to create stand-alone programs (anything from a game to a simple word processor, appointment calendar, or customized calculator, complete with pull-down menus, sizeable windows, and close and depth gadgets) that run from Workbench icons. This capability separates CanDo from DeluxeVideo III and InterActor, but also adds to the complexity of creating presentations in CanDo.

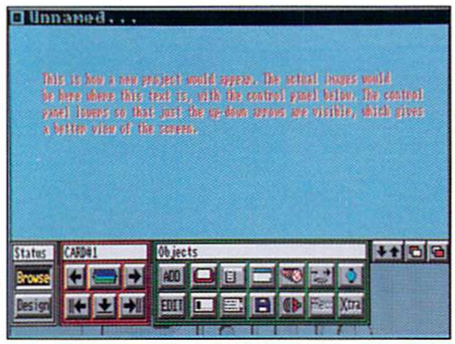
While creating buttons or pull-down menus that display pictures is very easy (just follow the requesters), harnessing the added power of CanDo requires use of the scripting language. Thankfully, CanDo employs a modular approach to scripting. Instead of dealing with a long script that covers the entire production, CanDo pops up an editable text window containing just the segment that deals with the object or action you are working on. On-line help and a row of tools beside the Scripting window automate script writing somewhat. With the Coordinates tool, for example, when you click on a spot on the screen, those coordinates are added to your script. The Picture Editor tool opens a requester that lets you load a picture, and writes a command to show it into the script.

InterActor takes still another approach in its interface, using a file-folder analogy. Half-screen-size requesters in the shape of tabbed folders are stacked on top of each other. Clicking on a tab brings the corresponding folder to the front.

The Load folder lets you load scenes (complete presentations), pictures, brushes, and sounds. The Scene folder lets you add the background picture and its settings, while the Actor folder lets you define the key elements of the presentation—the objects that the user will interact with. Actors can be DeluxePaint brushes or system-generated text, and you can have any number of them. For each one highlighted in the Actor window at the left, its State (this tells whether it has been clicked on by the mouse) and State Events (what happens when it is clicked on) are displayed in the windows to the right. This lets you easily focus on one actor at a time.



DeluxeVideo III's storyboard-with-timeline approach makes it easy to see what's happening when.



With the Object buttons on CanDo's sliding panel, you can assemble the major components of your presentation.



Flipping through InterActor's "files" is as easy as clicking on the tabs.

Working in the folders requires no typing, and no interaction with pull-down menus or requesters. To change an actor's screen position, for example, just click on one of the screen-position numbers, hold the mouse button down, and move the pointer up or down to increase or decrease the coordinate number. You can change an actor's position on the roster by grabbing and dragging it up or down in the list, and to add an event to an actor, just select an event type from the far right window. The simplicity of its interface makes Interactor easy to learn and navigate, and is one of its major strengths.

A Handle on Graphics

Except for the script-based Director (Right Answers Group), no other program offers you as many graphics-display options as **DeluxeVideo III**. There are dozens of slide, wipe, and reveal effects. A moving window can reveal an image underneath, the image underneath can slip behind the window, or both can travel in different directions at the same time. You can also easily scroll super bitmaps to make continuously scrolling backgrounds. I think DeluxeVideo III's image-display capabilities alone make it worth the purchase.

In **CanDo**, images are used primarily as backdrops, and except for the ability to scroll the screen, there are no set wipes or effects to create transitions. A unique Paint Editor tool works like a small paint program, and contains all the standard paint tools you would expect. If you paint on the background image, the program generates a script to duplicate your drawing when the program is run. You can even cut out an area of the background and stamp it down elsewhere, or temporarily mask a section.

The only built-in graphics display effect **InterActor** offers is a fade. If you are looking for fancy transitions, look elsewhere. InterActor emphasizes the many things you can do with the actors, and treats IFF pictures as backdrops.

Brush Strokes: Animation

DeluxeVideo III is designed to work hand in hand with DeluxePaint III (also by Electronic Arts), and there is no better combination for creating animation. DeluxeVideo III supports DeluxePaint's Anim format and animbrushes, and treats them just like still pictures and brushes, with the same effects and options available. You can move an animated anim brush along a freehand path you define across a playing anim. An animated brush can also wipe across an image to reveal another one below. You can create absolute and relative motion paths and edit them point by point. You can even turn part of your presentation into an Anim file with the Make-Anim option.

CanDo provides full support for animbrushes, but if you want to use a full screen Anim you must convert it to a brush with the supplied utility. The helpful scripting assistance disappears when it comes to moving and animating an animbrush. While there are several scripting options, such as defining whether the animation leaves a trail or uses sequenced or linear motion, it is far more difficult to create a moving animbrush than it should be.

What, no Anim support at all in **InterActor**? This may seem like an inexcusable lapse, but it makes some sense. Instead of using animbrushes, you load the individual frames for the brush, and flip through them to create animation. The ability to manipulate individual ►

frames non-sequentially provides far more flexibility, of which InterActor takes full advantage. Each brush is an interactive object that can have a motion path, collision detection with other actors, and be susceptible to gravity and acceleration. These factors can affect the playback sequence of brush frames. The inability to play Anims is a limitation, but Interactor lets you animate brushes in ways not possible with any other package. . .you can even create animated pointers!

For Interactivity, Press This Button

In **DeluxeVideo III**, buttons can be animbrushes, regular brushes, boxes (which you can easily create with a drop shadow from within the program), or lines of text. A button can become transparent when clicked on and reveal an object beneath it, giving you a simple animated effect. Button placement is very easy: just drag the thing to exactly where you want it in Preview mode. Besides the mouse-and-gadget combo, DeluxeVideo



YOUR TURN!

DeluxeVideo III is very intuitive—so easy to use that it will be difficult to force myself back to using the script-based Director. But I must, because DeluxeVideo III's wipes are too slow and choppy in hi-res. Also, it offers no dissolve function, poor-looking fades, and it won't play ANIMagic files properly.

—Roger Hand
San Francisco, CA

III also supports joystick interaction.

While any object or text can be a button in **CanDo**, this program also lets you create simpler varieties in embossed, shadow, 3-D, or outline styles in your choice of colors. Either outlining or complementary highlighting can show that it has been clicked on. You draw the button directly on the screen to set its placement; to move it you must change the coordinate settings.

One unique feature of CanDo buttons is that you can activate them in several different ways. Different scripts can be run depending upon whether a button is clicked once, double-clicked, click-dragged, or clicked and released.

InterActor is the only one of the three that lets you create moving animated buttons from brushes, and thus makes games and other sophisticated interactive projects possible. Not only can events be set off by clicking on buttons with the mouse, but those buttons can move and trigger different effects when they collide with other objects. Interaction can be random, and there is even a way to keep score for games.

One problem with button placement, though, is that there is no preview feature to aid positioning. You must deal strictly with coordinates, which makes placement tricky and error prone.

Earning Letters: Text

DeluxeVideo III supports all Amiga fonts including ColorFonts, and lets you ►

load them from any drawer or disk. Text can be displayed with outline, bold, italic, underline, and shadow attributes in a box or directly on screen. You can also link text lines together to create scrolling effects.

CanDo gives you all the text attributes DeluxeVideo III does, as well as embossed and ghosted effects. Here, too, you can box the text. ColorFonts are not supported, however, and the program recognizes only the fonts in your system's Font: directory.

InterActor gives you a full-blown text editor with options for number of lines, style (bold, italic, underline), alignment, and leading (spacing between lines). Text borders can be adjusted by height, width, and pixel thickness. InterActor does not support ColorFonts, and I could not figure out how to use anything but the ugly default font.

Alive with Sound and Music

DeluxeVideo III's Play Sound requester lets you adjust sound frequency (pitch), position (balance between right and left channels), repeat rate, stereo-versus-mono setting, and even the priority that sound will have over other events in your video. The duration of the sound is set on the storyboard timeline. Like the other two programs, DeluxeVideo III supports the standard 8SVX IFF sampled sound format, and in addition, supports the IFF SMUS music files that abound in the public domain.

For the best sound quality, you should play the music through a MIDI instrument, and DeluxeVideo III is one of the few presentation packages with MIDI support. You can load SMUS files into DeluxeVideo III and send them out the MIDI port to a keyboard (this saves memory, as the instruments need not be in RAM).

A requester in **CanDo** lets you set your sound's volume and channel, and via the PlaySound script command, you can set pitch. You can also trigger events at the end or beginning of a sound.

InterActor's lack of audio control is disappointing. This package offers no control over volume or over which audio channels play. The only variables are pitch and a loop option.

Reaching Out: External Control

The ability to control external devices, especially laser disks, is an important consideration for interactive software. **DeluxeVideo III** uses ARexx to control external devices (you must buy the ARexx software to use this feature, unless you can wait for its arrival on Workbench 2.0). One example on the program disk is for controlling the SuperGen genlock (Digital Creations) from within your presentation; another is for controlling a videotape recorder. While the ARexx port is important, most of us do not have the knowledge to take full advantage of it. To control a laser disk, for instance, you need to write custom software that the player would communicate with through the ARexx port. ARexx holds a lot of promise, but does not offer an easy laser-disk solution.

CanDo's ARexx features are better documented than are DeluxeVideo III's, and you can send text messages to other devices such as laser players, without having ARexx. Both let you communicate with the ARexx ports of other programs. You could, for example, create a program in CanDo that would act as a front end to DigiPaint 3 (NewTek), with full control over all of its features. While interprocess communication is exciting, the Mediaphile Editing System (Interactive MicroSystems) has added a CanDo module that allows CanDo to regulate any device with infrared remote control.

InterActor does not support ARexx. It is, however, the only one of these programs with built-in laser-disk control, sending commands straight out of the serial port to a Pioneer 4200 or V6000 laser disk. It lets you play from a specific frame of video to a sequential frame of video, which makes showing laser-disk stills and animations very easy. This is an important feature, as the addition of laser-disk images greatly expands what you can do in your presentation.

How Easy?

DeluxeVideo III's interface is top notch, and I found the program very stable and easy to move around in. The storyboard ►



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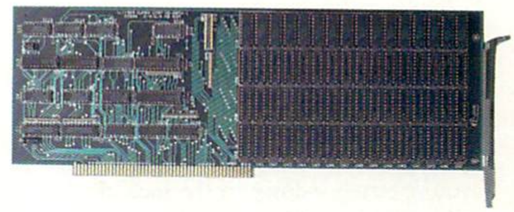
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approach makes it easy to keep a handle on the sequence and relationships of effects. Another important feature is the VCR-like control bar you can display at the bottom of the screen while a video plays. It provides a counter to show exactly where you are in the timeline, and lets you fast forward, rewind, pause, loop, single step, turn the audio on and off, and send the audio out through the MIDI port. This makes it easy to see just what happens at each moment.

Because you can so easily visualize how everything works, debugging is greatly simplified. Error handling seems very good, and the error messages tell you precisely—down to the second—where an error has occurred.

Electronic Arts did a professional job with the manual. It includes a "guided tour," a fine index, very good tutorials, design and video-creation advice, and a solid reference section.

Even with effective interfaces, script-based programs like **CanDo** are a little more difficult to use. You will need to take some time to understand how the scripting process works and what the script commands do. CanDo's error messages are pretty detailed and useful, and you'll find the on-line help very handy. Because you work with only parts of the script at a time, it is easy to zero in on problems. There is even a verify option that checks the section of script that you are working on for syntax errors. For a script-based program, this is about as easy to use as you will find. The automatic scripting features work pretty well, but the animation scripting support could be much better.

While CanDo's manual is nicely designed and fairly comprehensive, the lack of an index in the initial release made it very hard and enormously frustrating to use. Fortunately, a complete index was included with an addendum update. There are only two tutorial examples—both of which are overly simplistic and not all that helpful. The way to learn CanDo is to study the several examples on the demo disk (I wish these were covered in the manual) and those sure to be appearing on electronic bulletin boards. If you have any experience with BASIC, you will be able to master CanDo fairly quickly and do some amazing things. Those without programming experience will need more dedication to fully exploit CanDo's power.

InterActor is also script based, and you can even edit the script as a text file, but its interface does not force you to deal as directly with scripting as does CanDo's. I would like to be able to type in numbers besides scrolling through them, and position objects by dragging them into place. As it is, if you want to make an engine consisting of separate brushes for the different parts, you will have a heck of a time positioning them unless you write down all the coordinates while in your paint program.

InterActor would be far easier to learn if the manual was not so awful. It is skimpy and lacks an index, although an updated version and rewritten manual (complete with index) are due out by the time you read this. There are many examples on the demo disk; as with CanDo, studying them is the best way to learn the program.

YOUR TURN!

If you want to do something apart from sequential IFF displays, CanDo's nifty interface won't help. (And why isn't an animbrush editor included?) On the other hand, DeluxeVideo III is lean, strong, and wonderfully nimble. While is supports SMUS, it does not support RFF instruments, however, and running under the 68000, sound playback slows noticeably while color cycling. Otherwise, the program is nearly perfect—and saves me from having to learn programming.

—John W. Covington III
Savannah, GA

Conclusive Evidence

I recommend **DeluxeVideo III** highly. It is powerful and easy to use, and you will find many exciting things to do with it. It is an incredible bargain, and even if you only use a small part of its features you'll be getting your money's worth.

CanDo is a good buy if you want to do basic interactive presentations and are intrigued by the prospect of creating working programs without programming.

InterActor is missing a lot of features I would like, but is the only one with laser-disk support and animated moving buttons. The object-collision and other movement effects are completely unique. If these aspects sound exciting, InterActor should be in your interactive toolkit. Beware, though: It uses one of the most annoying forms of copy protection there is. . .the dreaded dongle. If you misplace it, you cannot use the program. I urge Very Vivid to make unprotected versions available, as the dongle is a strong disincentive to using the program professionally.

Another positive factor is InterActor's usefulness as a companion to other programs. CanDo and other programs that run DOS commands can call an InterActor presentation, which, when finished, will return to the program that launched it.

The market is just opening up for interactive presentations, and now is the time to get in on the ground floor of what experts predict to be an improtant trend. Any one of these packages will give you a respectable entry into the world of interactivity.

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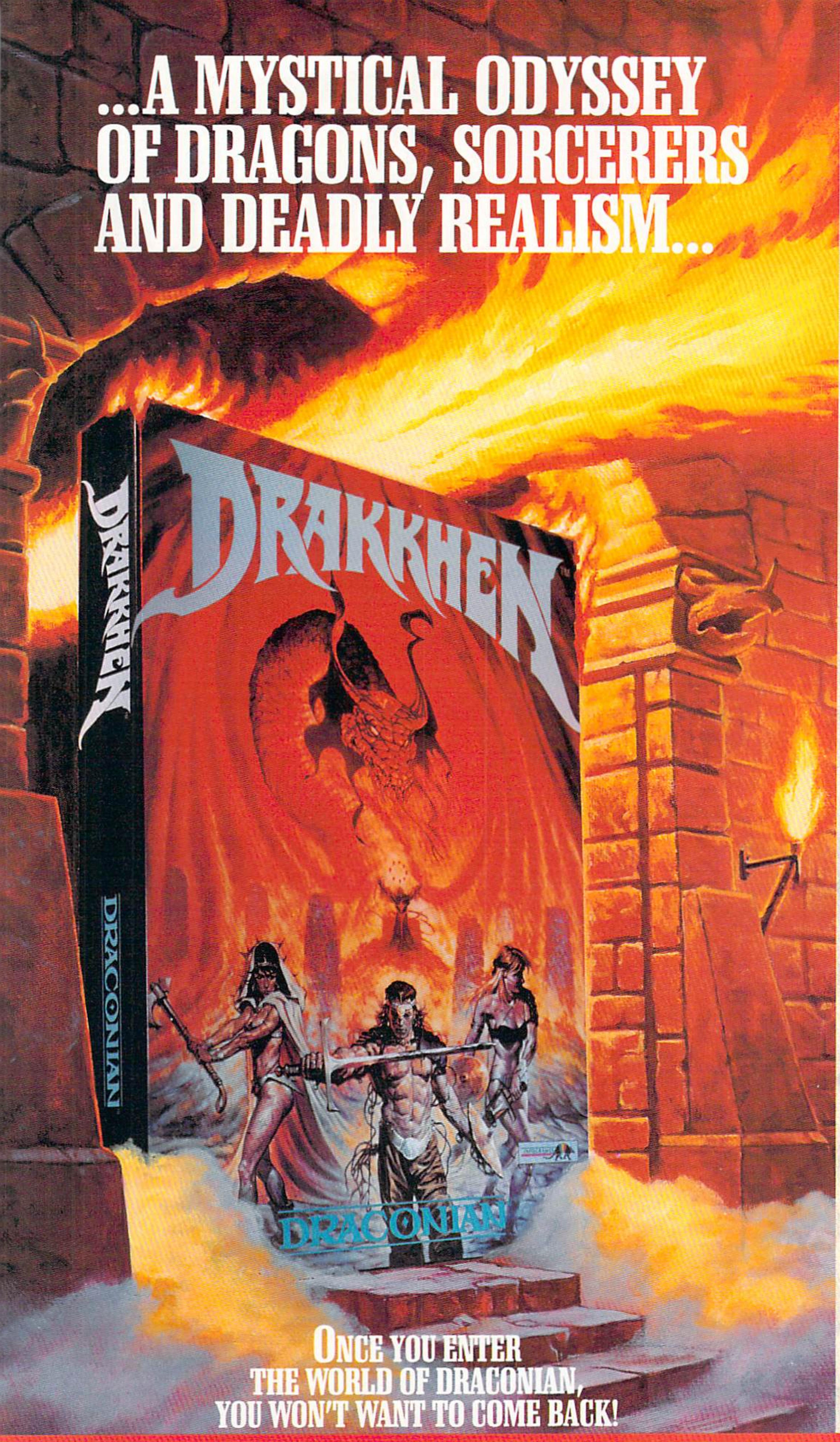
VIDEO DIGITIZERS ARE great, but they can produce images no larger than the Amiga's screen. This means you can achieve very high resolution with only small originals: An image digitized at 200 dots per inch (dpi) must be three inches across or less to fit on screen. For capturing larger static images, the scanner is the instrument of choice. Color desktop scanners are costly though, and traditionally, low-cost scanners have been limited to black-and-white output. ScanLab 100, a package containing Sharp's JX-100 scanner and ASDG's ScanLab software, makes color scanning more affordable.

Although Sharp calls the JX-100 "handy," it is definitely not hand-held. It measures 12.6 inches long, 6.3 inches wide, and 1.6 inches deep, and weighs 3.5 pounds. The power supply is a black box with two six-foot cables. The scanner is fitted with another six-foot wire that terminates in a nine-pin D connector and a short lead for the power supply. A 12-inch cord hooks the scanner to the Amiga's serial port (you must provide a gender changer to connect with an A1000).

Individual scans generate either one or six bits per pixel, and the resulting image can be either pure black and white or contain up to 64 gray levels. The software combines three passes of each scan type to create an image with either three or 18 bits per pixel. The former translates into eight colors while the latter produces 262,144 colors.

Although you can set lower rates, in default mode the scanner transfers data to the Amiga at 115,200 bits per second (bps) to accommodate large amounts of data. Scanned at 200 dpi, the JX-100's maximum scanning area (3.9 × 6.3 inches) contains nearly one million bits.

Continued on p. 72





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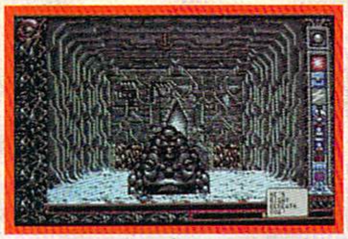
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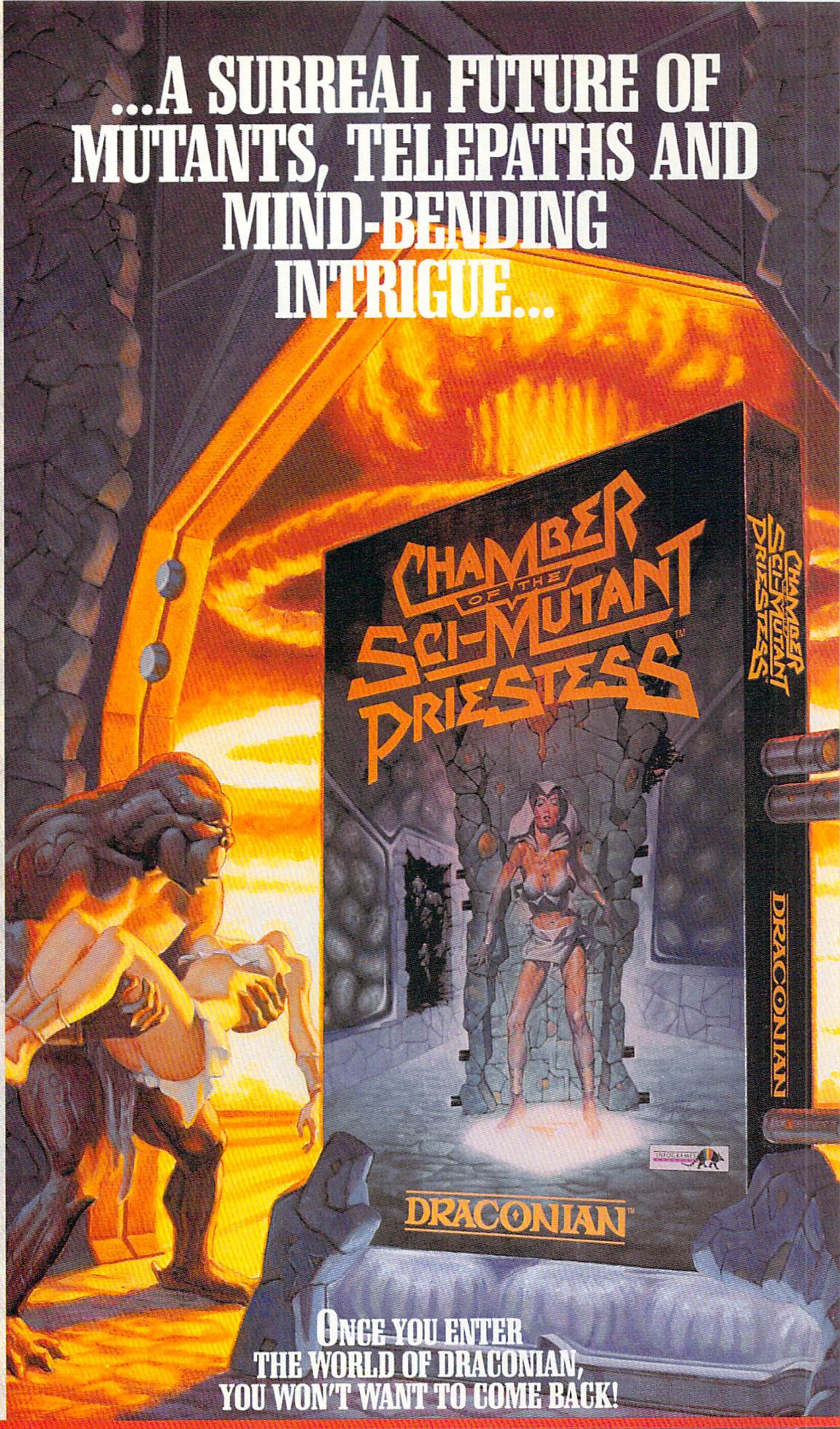
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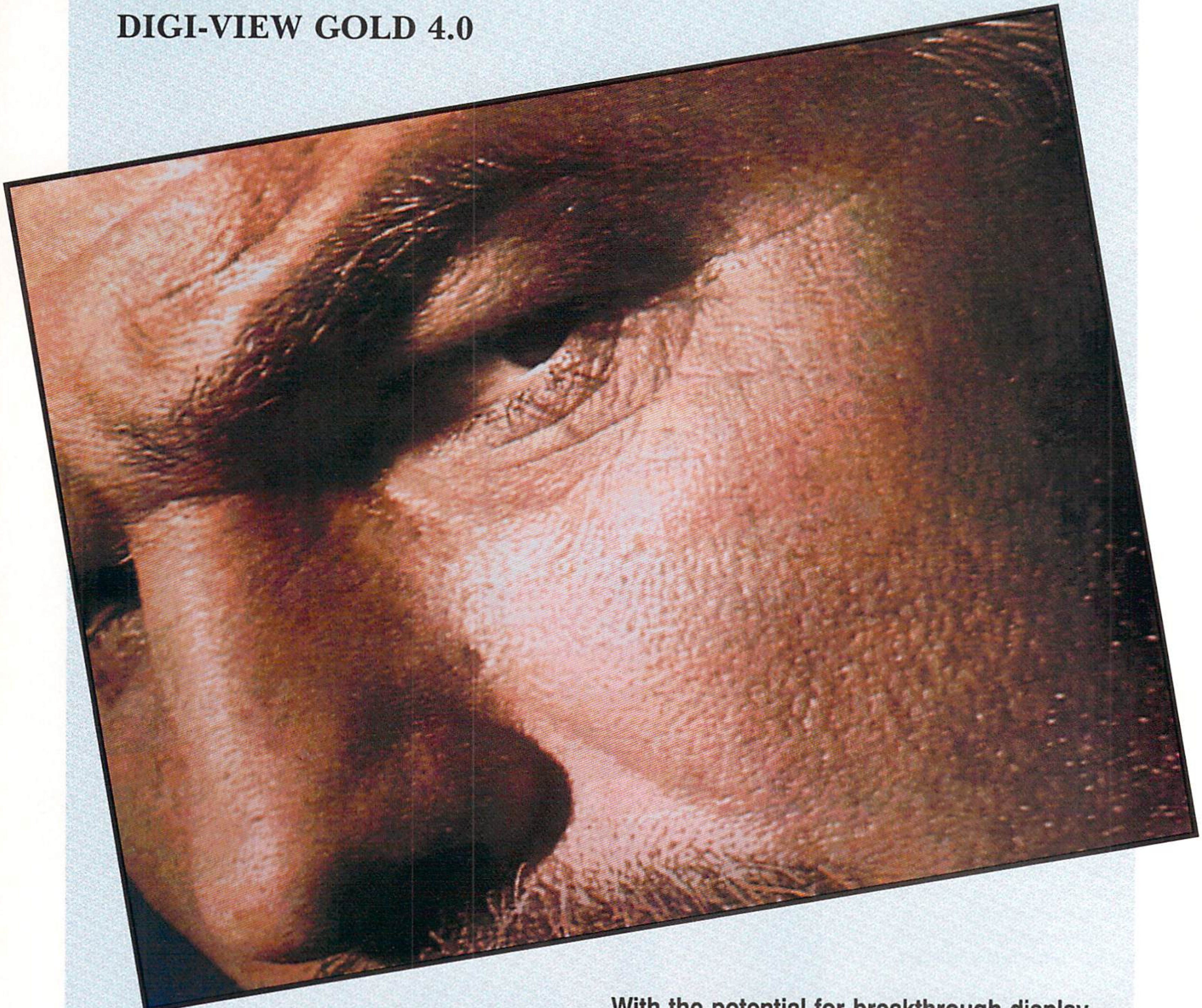
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AN IN-DEPTH LOOK AT DIGI-VIEW GOLD 4.0



With the potential for breakthrough display capabilities, and a host of improvements and added features, NewTek is creating a brand new image for its popular digitizer.

UP CLOSE AND PERSONAL

WITH THE RELEASE of the new Digi-View Gold 4.0 some may say, Why mess with success? From its first appearance, NewTek's video digitizer has delivered tremendous power at low cost and become one of the most widely used products in the Amiga community. To keep up with rapid advances in the video/graphics field, however, NewTek has broken new ground by offering pioneering developments in display technology—Dynamic HiRes and Dynamic HAM—plus significant enhancements to the product's current capabilities. While engineers of the Topeka-based company may not be the next Wizards of OZ—not *every* aspect of 4.0 is as wonderful as it might appear—the overall result represents an important milestone on the road to better, more exciting Amiga video graphics.

Dynamic HiRes: Somewhere Slightly Over the Rainbow

At first glance, the most compelling feature of the Digi-View upgrade ($30.95 to current users) is Dynamic HiRes mode with its potential for displaying all 4096 Amiga colors simultaneously in a hi-res overscan resolution of 704 by 480 pixels. In Dynamic HiRes, each horizontal line can thus contain a different 16-color palette. Theoretically, all 4096 colors can be displayed on a single high-resolution screen. Digi-View, in order to alter all 16 colors per line, actually takes complete control of the 68000 central processor, synching it to the coprocessors—which means, of course, multitasking goes out the window while a Dynamic image is being displayed. Even moving the mouse will temporarily break the image into confetti. In all other modes, Digi-View will fully support the Amiga's multitasking capabilities.

To view Dynamic images, 4.0 includes a special utility, Dyna-Show, which will display all IFF images singly or from a script. NewTek has probably pushed the display of a stock Amiga about as far as it can go. Doing so takes the Amiga out on a limb. The view is great, but the perch is tenuous.

While a number of developers are planning to add display support for the Dynamic mode, do not anticipate being able to animate, composite, or otherwise utilize these images as flexibly as you do standard, Extra_Halfbrite, or HAM images. More significantly, do not expect to simply turn on your camera and get HAM colors at 640 × 400 resolution. The limitation of 16 colors per line often results in pronounced horizontal banding of the image—most noticeable where there is a lot of horizontal color variation. For example, if there are yellows, reds, and browns on the left, there may not be enough colors remaining on a line to represent blue and green on the right.

Having worked with Digi-View for almost three years, I consider myself a proficient user. Out of the first ten images I digitized in Dynamic HiRes, not one ►

BY JOEL HAGEN

was free from some degree of horizontal banding, including the illustration reproduced here as Figure 1. I chose to use that imperfect image to show a moderate example of the kind of banding you may experience. The illustration also contrasts the detail and color of a Dynamic HiRes image with a 320×400 HAM version of the same antique lithograph (see Figure 2). I also contrast my own digitizing with one of the best sample images provided by NewTek on a demo disk of Dynamic HiRes images. This image of a face (opposite the opening page of this article) shows how good the new mode can be if you master its idiosyncrasies.

The fact that I tried ten times to get a clean image does not mean I give this new mode thumbs down.

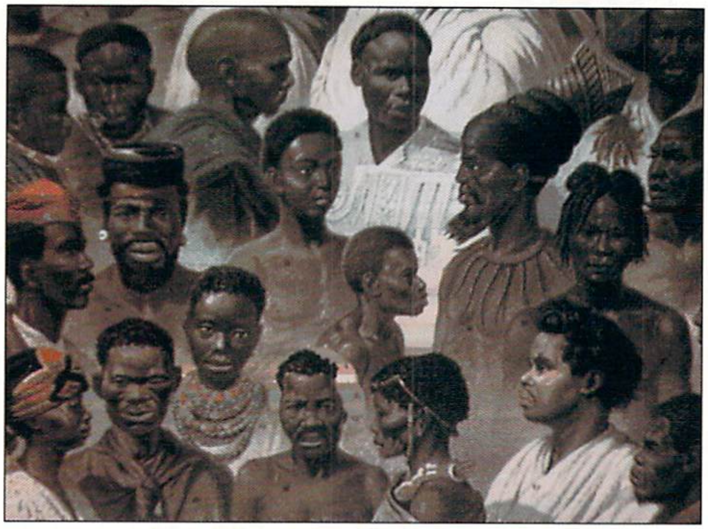


Figure 1. This antique lithograph represents one of the author's attempts at digitizing in Dynamic HiRes mode. Although overall quality is fine, you can still see moderate instances of horizontal banding.



Figure 2. The same antique lithograph diplayed in 320×400 HAM mode. The three bands demonstrate the effects of varying the noise reduction and sharpness controls. The bottom band represents the default settings.

It does mean that you may find Dynamic HiRes quite challenging. Proper, balanced lighting will be critical. Use the Histogram feature under the Project menu to check the brightness axis of the raw data graph. If 70% or more of that base line is covered, there is probably enough light on the subject. Avoid hot spots, as they multiply the shades of color the camera "sees." Selection of good candidate images is critical, and many will simply not work in Dynamic HiRes. Conversely, rich color and detail are easily achieved in the 320×400 HAM mode. Also, the normal HiRes color dithering is superb. In my opinion, it is a relatively rare image that will work better in Dynamic HiRes than in one of these two modes.

Touching up Colors Along the Yellow Brick Road

It would be inappropriate to discuss Digi-View 4.0 without some mention of NewTek's HAM paint program, Digi-Paint 3 ($99.95—for a thorough review of the program, see Nov. '89, p. 14). A digitized image is of limited value without some means of modifying it. While other paint programs will load any standard Digi-View image, Digi-Paint can run simultaneously with Digi-View, providing the only means of editing Dynamic images. Once an image is saved in Dynamic mode, it cannot be modified later. A Digi-View option in the Controls menu, however, allows you to transfer a captured image directly to Digi-Paint for retouching. RGB information from a Dynamic HiRes image is processed into a HAM super-bitmap. Although you do not see the entire image in the display screen, you can scroll through it as you work in HAM mode and resolution.

The ritual for this entire operation is very specific. (I had no success following the procedure as outlined in the manual.) Through experimentation and help from NewTek's excellent toll-free phone-support line, I offer the following precise method for capturing, modifying, and saving an image that will then display as a Dynamic HiRes picture.

Shut down all background tasks and run Digi-Paint. Set Size to 640×400 (or 704×480 for overscan). Return to the Workbench or the CLI and run Digi-View. Open the appropriate HiRes screen size. Capture the image and do all image-processing adjustments in 16-color mode until you are satisfied with the Display. Click on the Dynamic button in the Control screen. The image will then take about ten minutes to reprocess as a Dynamic HiRes picture. During that time, the entire screen will be visual confetti until the finished image pops up. You will then see if your judgement, lighting, and karma were all in balance. Under the Controls menu, select Digi-Paint. The display will shift to the Digi-Paint screen and you will see a HAM version of the image gradually build as a super-bitmap. Touch up the image and save it. Return to Digi-View in a high-resolution Dy-

namic screen size and load the saved image. Save it again from Digi-View and use Dyna-Show to display it as a Dynamic HiRes picture. Without the re-save from Digi-View, a section of the HAM version only will be displayed.

There is one final but significant precaution. You will need at least two megabytes of RAM in order to digitize in all available modes. With anything less you cannot digitize in high-resolution 640 × 400 color or in Dynamic HiRes. In order to run Digi-View and Digi-Paint simultaneously, you will need three megabytes of RAM. Furthermore, you cannot edit Dynamic HiRes images unless your three megabytes include the megabyte of chip RAM provided by the new One-Meg Agnus chip. This is a serious consideration, but if you are operating with a one-meg machine, realize that you are limiting the power of your Amiga unless you bring it up to fuller capabilities. I do feel it is important for software developers to offer features that capitalize on more powerful Amiga configurations, but if you cannot expand your Amiga, remember that tremendous digitizing and processing power is still available in Digi-View at the one-meg level for most of your needs.

Meanwhile, Back in Kansas, Things Are Definitely Looking Brighter

Even if you seldom use the new Dynamic mode, I recommend upgrading to 4.0. The interface has been improved considerably, and there are several significant enhancements. The file requester finally lists all available volumes or devices alphabetically. You will find improved multitasking support, including a drag bar that toggles on and off and has front/back gadgets. In addition, a Workbench open/close option helps memory management. Resolutions can be changed from within Digi-View, although the current image display will be lost. Also, NewTek claims full support for the 68020 processor.

A new image-processing feature on the Control screen, NR (Noise Reduction), helps counteract grain, snow, and high-frequency noise in the video signal. It can also reduce the graininess caused by low light. It is most useful in conjunction with the sharpness control, with the best NR range apparently around 2 or 3. Beyond that, artifacts and an "over-filtered" look creep in. The top band of the 320 × 400 HAM illustration (Figure 2) shows the extreme effect if you overdo noise reduction. The bottom band shows the image at default settings. The middle band shows Sharpness raised to +10 to exaggerate its effect. (For best quality, I recommend a setting no higher than +5.) The top band shows Sharpness still at +10 with NR raised to +7.

One of the more significant new additions to the 4.0 release, in my opinion, is support for ARexx. The power of ARexx on the Amiga may be slow to be felt, but the implications are enormous. (See "ARexx: New Kingpin of Multitasking?" Nov. '88, p. 55, and "ARexx: The Missing Link," Aug. '89, p. 30, for more information on ARexx.) ARexx is an interprocess communication protocol. It is a complete language that allows users to enable one application to control aspects of other applications, or to write their own ►

Getting Started

Digi-View Basics

NEWTEK'S DIGI-VIEW hardware/software digitizing package has been a mainstay of the Amiga video/graphics field almost since the very beginning. The original Digi-View for the Amiga 1000, and then the first Digi-View Gold for the A500 and A2000, became immensely popular standards in the Amiga market. While the new 4.0 release is essentially an upgrade to Digi-View's *software* component, it may be useful to newcomers to outline the basic Digi-View equipment.

The Digi-View hardware is a small unit that plugs into the parallel port on the Amiga. The video signal is fed into the Amiga through an RCA jack on this unit. Capturing and processing an image is controlled through a well-designed software interface. Digi-View performs three scans to build its final image. These scans successively acquire the red, green, and blue components of the image, then combine them to build a full-color IFF picture. Included with the hardware is a color filter wheel segmented into red, green, blue, and clear quadrants. This wheel can be mounted on a black-and-white video camera and rotated for each successive scan. An optional NewTek motor drive, Digi-Droid ($79.95), allows you to rotate this filter wheel automatically.

Hardware color splitters available from other companies can separate the red, green, and blue components of a color video signal. The results can be excellent, but will depend on the quality and resolution of the incoming color signal, typically lower than that of a black-and-white camera.

Menu selections in the software bring up control panels through which the user can select resolutions, adjust the tracking, width and position of the incoming signal, control the palette, and perform powerful image processing before saving the final image. Digi-View supports a full range of resolutions—from 320 by 200 pixels up to hi-res overscan 768 by 480 pixels. You can adjust the number of colors used in an image at any point prior to saving the image. HAM, Extra_Halfbrite, 32-color, and black-and-white modes are all supported. In addition, version 4.0 introduces Dynamic HiRes and Dynamic HAM modes—new display possibilities that will be discussed in the main article.

—JH

control program. An external script can thus control all Digi-View functions via their ARexx commands. For example, MHAM sets the HAM mode, SARP (5) sets Sharpness to + 5, and so on. Such applications as unattended time-lapse photography with automatic image processing come immediately to mind (See the *Up and Running* sidebar "Scripts For Success—With ARexx" for an example of such an ARexx script.) Because Digi-Paint 3 is also ARexx-compatible, you can port captured images automatically into the paint package for pre-programmed manipulation as well. One animator I have spoken with has already used this combination to capture, composite, and compress animation frames automatically—while all he has to do is change the photos on his digitizing stage when prompted by his program. This kind of integration of functions is a major philosophical step—changing our perception of what computers are and what they can do—and it is exciting to see so many developers adding ARexx support.

To sum it up, while the jury still may be out to some degree on Dynamic HiRes, version 4.0 adds significant enhancements to Digi-View and is well worth the upgrade price. In my opinion, Digi-View is the best value in Amiga digitizers, and delivers the best images of stationary source material. The interface is well designed, the manual is slim and thorough, the image processing is powerful, and the price is right. Dynamic HiRes is impressive when its rituals are properly performed, but it is not the hi-res Holy Grail.

Digi-View Gold 4.0
NewTek
115 W. Crane St.
Topeka, KS 66603
913/354-1146
800/843-8934
$199.95. Upgrade (software) only: $30.95 ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him c/o Amiga-World, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

Up and Running

Scripts For Success—With ARexx

BELOW IS A sample ARexx script for time-lapse photography. I have limited the script to only two frames simply to provide an idea of the language and of the capabilities it can offer in conjunction with applications such as Digi-View. *—JH*

```
.key leavethishere

DoWeHaveMem
if warn
echo "     Sorry - This demo requires 1 megabyte
     of memory"
wait 2
skip NoMemory
endif

if not exists RAM:Echo
copy DVLink RAM:
copy C:Wait RAM:
copy C:Echo RAM:
endif

RAM:echo " A sample script to demo time lapse
     digitizing."
RAM:echo " Gets 1 black and white frame every 15
     seconds for a minute."
RAM:echo " Requires 1 Meg of memory."
RAM:echo ""

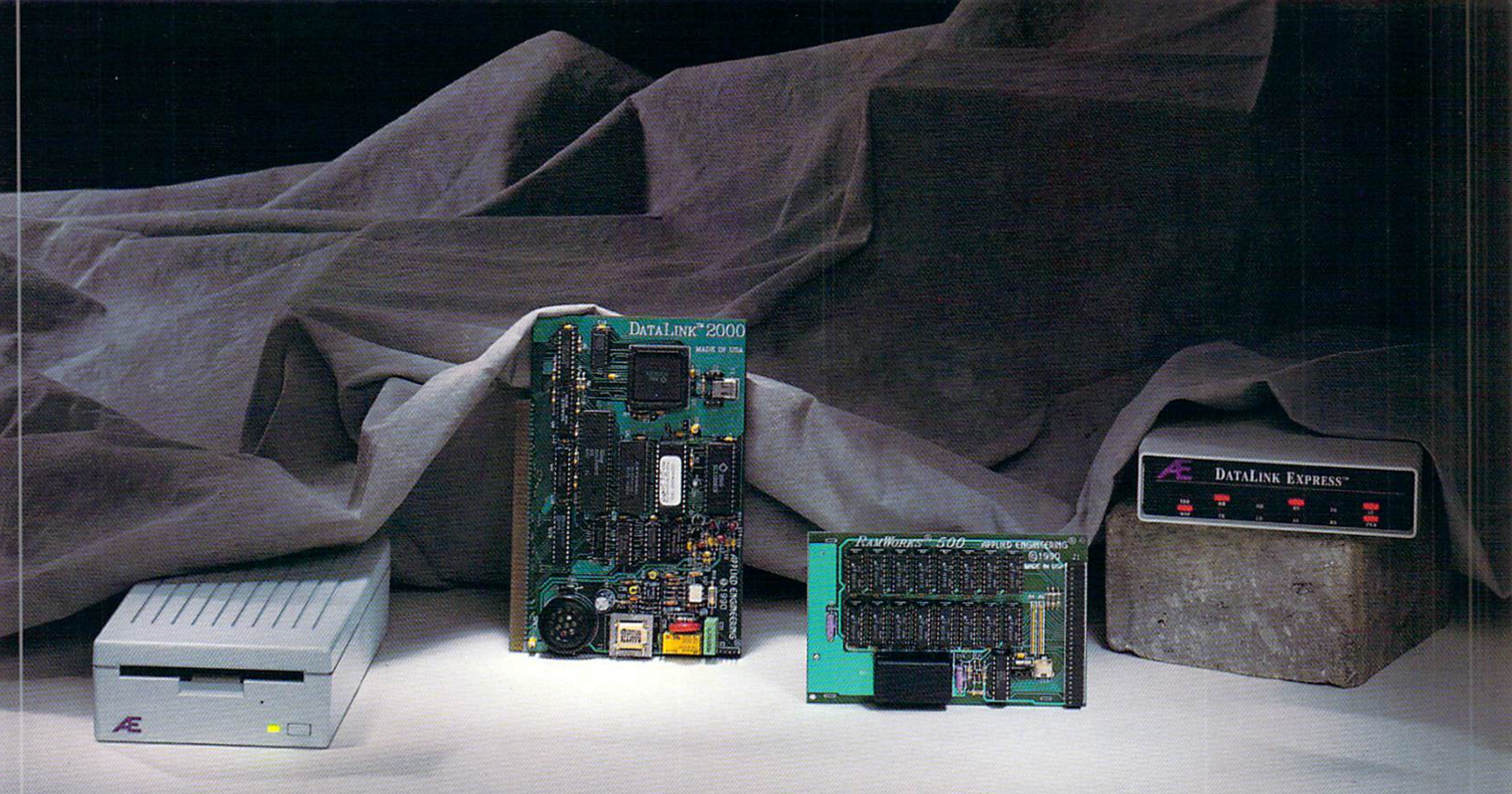
cd /          ; MUST BE IN DIGI-VIEW DIRECTORY
RAM:DVLink mbaw    ;Check for Digi-View
if warn
RAM:echo " Now Loading Digi-View ..."
run >nil: DV 320 200 b
RAM:wait 9  ; Floppy delay, change for hard drive
lab loop
RAM:DVLink mbaw
if warn
RAM:wait 2
skip loop back        ;wait for Digi-View to load
endif
endif

RAM:echo " Digitizing 1 of 2"
RAM:DVLink digr
RAM:DVLink scbk
;RAM:echo " Saving file1 to RAM ..."
;RAM:DVLink siff RAM:file1
RAM:echo " Waiting to digitize next frame ..."
RAM:wait 5

RAM:echo " Digitizing 2 of 2"
RAM:DVLink scfr
RAM:DVLink digr
RAM:DVLink scbk
;RAM:echo " Saving file2 to RAM ..."
;RAM:DVLink siff RAM:file2
RAM:echo " Waiting to digitize next frame ..."
RAM:wait 5

RAM:echo ""
RAM:echo " Done!"
RAM:DVLink quit

lab NoMemory
```



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The Fine "Art" of Printing

We suggest you look at the fine print in this article if you care about printing high-quality hard copy for fine art or presentation graphics.

By Nancy J. Freeman

Substituting an Amiga and a few paint programs for the clutter of a traditional studio may have solved one problem for the contemporary artist. But the advent of computer graphics has also created dilemmas never imagined by the Renaissance masters of Florence or the Impressionists of Montmartre. Unlike conventional paintings, computer screens do not hang well over fireplaces. Such art is only as good as your system's printer, no matter how much work you put into it. The keys to good output are choosing the right printer, knowing its limitations, and learning how to work around them.



Color Quartet

Affordable graphics printers fall into three categories: dot-matrix, thermal-transfer, and ink-jet. While each uses a slightly different process, all work by applying minute dots of cyan, yellow, magenta, and black ink to the page. To achieve the full range of color, value, and shade, these dots are mixed or overlaid. The "best" printer to choose depends on the quality you require, your artistic style, and your budget.

Dot-matrix color printers, such as the C-Tech Electronics' (C-Itoh) 715A ($1499), produce images by striking a four-color ribbon against the paper with fine pins. The number of pins (most commonly 9, 16, or 24) determines the level of quality—the more pins, the denser the dots, and the truer the representation. The printhead passes over each line four times, once for each color. Because of this four-for-one impact method, dot-matrix printers are relatively slow and noisy. With a good printer and a new ribbon the color saturation is acceptable, but after only a few prints the ribbon wears and the images look faded. While the easiest option to find, dot-matrix printers are the least desirable for graphics.

Thermal-transfer color printers use heat to melt dots of wax-based ink onto the paper. Again, the printhead passes over a four-color ribbon four times to apply the separate colors. Unlike dot-matrix printers, however, these require specially treated paper and wax-based ink, producing a finished product with a shiny surface. Thermal printers apply thicker pig- ►

ILLUSTRATED BY NEIL BRENNAN



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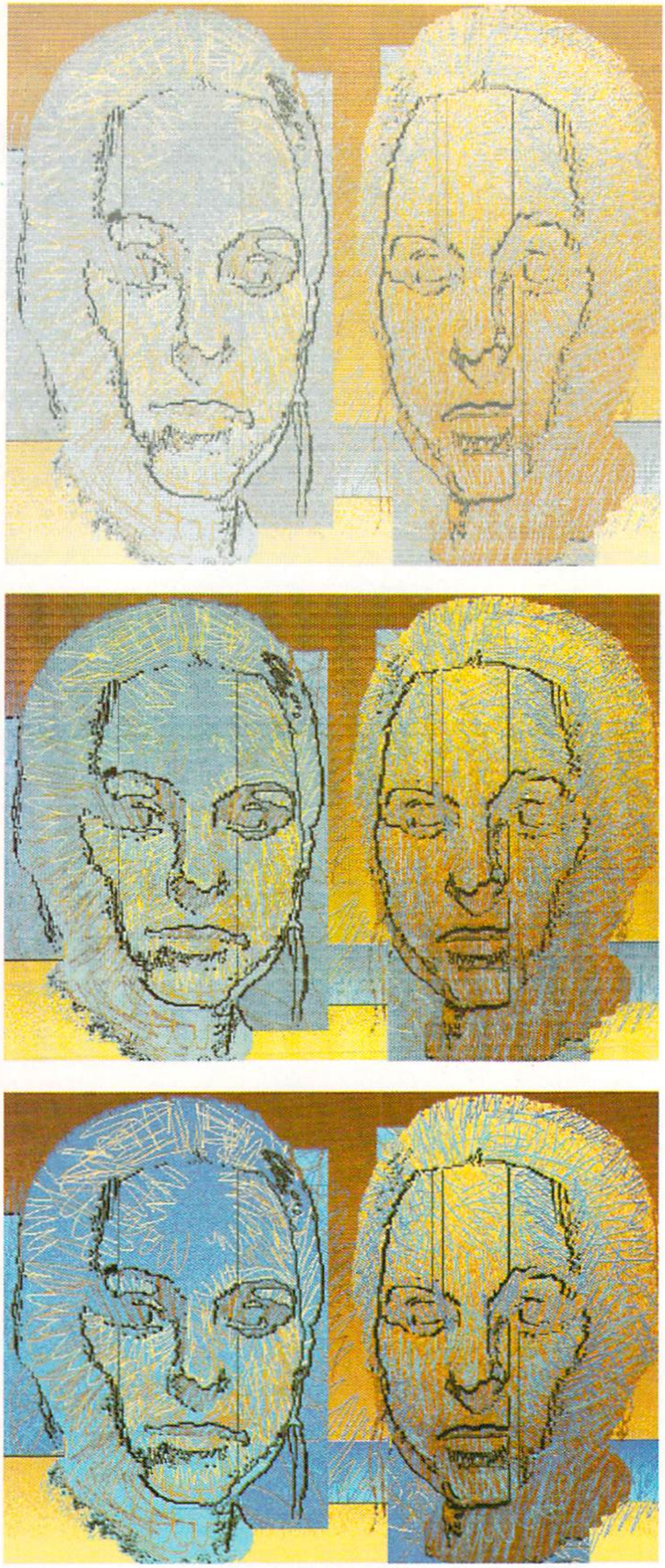


Figure 1. Compare the difference in output between 1.2 (top) and 1.3 (middle) printer drivers. Then compare these 24-pin dot-matrix results with H-P PaintJet (bottom) output.

ment, providing colors that are less likely to fade. With high-end models, such as the Color Master (CalComp, $4995), the results can be breathtaking.

Beauty has its price, however; the thermal printer's expensive four-color ribbons fade quickly. Even more distressing, low-priced thermal printers like the Okimate 20 (Okidata, $189) are fast disappearing.

For artists who need a consistent print run, an **ink-jet** printer, such as the Hewlett-Packard PaintJet ($1395) or the Xerox 4020 ($1495), is the best choice. (See Figure 1 to compare the output results of ink-jet [bottom] with dot-matrix [top and middle] printers.) Most ink-jet printers use tiny nozzles to propel a fine dot of ink onto the paper, distributing all four colors in one pass of the printhead. This once-per-line, non-impact technique makes ink-jets the fastest and quietest option. Ink-jet colors are rich, fully saturated, and consistent throughout the life of the ink-cartridges. For best results, use coated paper; prints on regular paper tend to be dull. Because the ink must be very thin and the pigment particles very fine to go through the microscopic jets, ink-jet prints tend to fade the fastest. Some artists are successfully experimenting with refilling Xerox ink wells with more permanent colors, such as Dr. Martin's Dyes and Watercolors (available in most art stores).

If your style is very linear or geometric, consider a **plotter**. Plotters, such as Hewlett-Packard's 7440A ($1295) and 7475A ($1895), use pencils or pens mounted in the plotter head to draw the image. Plotter drawings avoid the fading-color problem entirely because you can use pens with permanent ink in the devices. The limitation is that plotters are vector devices. They make very smooth lines, even on the diagonal, but they cannot interpret the bitmapped images that paint programs produce. To use a plotter, you must draw in a CAD or structured-drawing program.

Match Game

Even with the best printers, exciting and vibrant compositions designed for the glowing screen can appear dull and disappointing in print. The problem stems not from your equipment, but from translating an image from the medium of light to that of pigment. Color mixing with light on the screen is an additive process: When you mix light of different colors, you add light to form a color that is brighter than its components. Color mixing with pigments on paper is a subtractive process: Each color you apply subtracts a particular color of light by not reflecting it (blue objects reflect blue but not yellow, for example). Thus, when two transparent pigment colors are mixed, the resulting color is always darker than its components. To compound the problem, the primary colors of pigments are magenta, yellow, and cyan, as opposed to light's primaries of red, green, and blue.

Translating a screen image to printer paper can require many color adjustments for each print. The difference is most noticeable with colors having a large component of cyan. Amiga monitors do not

display cyan well. On my monitor, fully saturated cyan shows up as a very pale color, closer to white than to the deep, rich turquoise-blue that would appear on the printer. Greens can drive you equally crazy. What displays on the screen as a light yellow-green can come out of the printer as a deep blue-green. Preferences' Graphic 2 screen in Workbench 1.3 has a Color Correct option that tries to compensate for this color shift problem (see the sidebar "Graphic Improvements"). It helps, barely. I now save two versions of my screen-size compositions: one to view on screen, and one to run out on the printer.

One way to avoid unpleasant surprises when you output new pictures is to print a color chart of available choices. Manually adjusting your paint program's sliders to every possible combination is

Graphic Improvements

THE 1.3 VERSION of Preferences offers help for problem color prints. In addition to supporting many improved printer drivers (see Figure 1, top and middle, for a comparison), Preferences 1.3 added a new control screen. The Graphic 2 screen offers several controls and options to tailor an image's color and texture.

When **Smoothing** (also called anti-aliasing) is turned on, the Amiga tries to smooth out the "jaggies," or stair-step effect, that a diagonal line of pixels produces. While this is very important for clean-reading text, it is also very useful for any linear or diagonal graphic element as well. Smoothing does, however, slow down the printing a bit. Figure 2 contrasts the effects of Smoothing On and Smoothing Off.

Color Correct R/G/B tries to match the colors on the printer more closely to those on the monitor. You can select the red, green, or blue components separately or all together. Figure 3 highlights the differences. The blues are noticeably lighter and the reds slightly lighter, but the effect is most dramatic in the green range (note especially the lightest yellow-green next to the pure yellow in the second bar). Although the color correct function is only partially successful, it is very helpful with HAM pictures when you cannot manually adjust each color. Once again, the function slows down the printing process.

You can choose three dithering options, **Ordered, Halftone,** and **F-S (Floyd-Steinberg)**. Figure 4 shows the first and third of these options. The Halftone option made very little difference, at least with this printer, producing only a slightly washed-out effect and a touch more banding. The F-S option has a considerably different texture than the Ordered dithering, most noticeable in the lightest colors. This texture seems to be stronger when the image is printed sideways, and sometimes displays a randomness that you may or may not find appealing. When you select F-S, speed is considerably reduced and you cannot use the Smoothing option.

These Graphic 2 option samples were printed on a Hewlett-Packard PaintJet. Each printer is different, and each artistic application or style has its own demands. Experiment with different settings to determine what works best for you. □

—NJF



Figure 2. With Smoothing off (left) diagonal lines and curves are jagged. Smoothing On (right) softens the effect.



Figure 3. If a standard printout (left) does not match your screen colors, turn on Color Correct R/G/B (right).

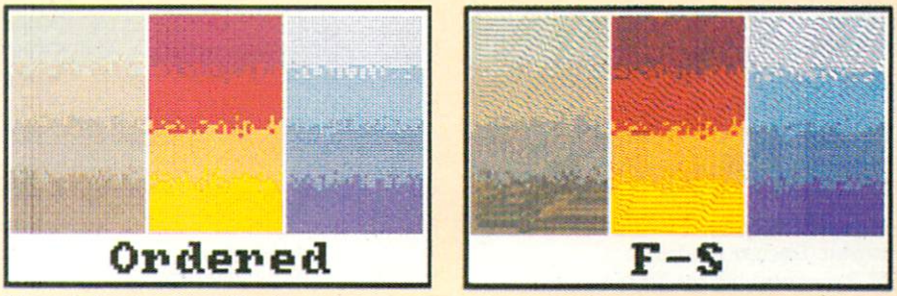


Figure 4. By changing dithering options, you can alter the texture of your printouts.

Color Fade Tests

EASY TO PERFORM, a color-fade test helps determine how permanent or fade-resistant the pigments are in a particular printer output. Although artwork should never be exposed to direct sunlight, in this test sunlight speeds up the fading process that naturally and inevitably occurs in ambient light.

First, you need a sample of the printers's output. I use the pattern shown in Figure 5, but an extra picture will do in a pinch. Record the date on the sample, cover part of it with opaque black paper or cardboard, and place it in a south window for at least a month. At the end of the month, remove the partial covering and compare the exposed and unexposed sections.



Figure 5. In this Color Fade test, the four-bar charts show the degree of fading in each of printing's primary colors, without (top) and with (bottom) an ultra-violet blocking spray.

The test results shown here are for a sample of untreated ink-jet output and a sample that was sprayed with an ultra-violet inhibitor. As you can see in the untreated sample, the cyan and magenta pigments faded drastically. Although there is still some fading in the treated sample, the spray helped considerably. □

—NJF

thorough but tedious. As a shortcut, consider Pure Color (Graphic Design Studio, $24.95) or Palette Printer (Ontological Survey, $29.95). Both are collections of IFF screens of color charts that when printed are a handy reference for color selection.

Your next challenge is to keep your printed colors from fading and deteriorating due to weak ink and acidic paper. Margaret Veerhoff, a certified archivalist at the Veerhoff Gallery in Washington D.C., advises framing prints with ultra-violet resistant plastic, or spraying them with UV-blocking spray. (I have heard claims that hair spray will help, but my tests indicate otherwise.) To neutralize the acidity of the paper, many framers use W'ei To Spray. Before outputting your masterpiece, however, you should always run color-fade tests on your printer's output to find out what does and does not work. (See the sidebar "Color Fade Tests.")

FOR THE RICH AND FUTURISTIC

Printer technology has a history of rapid improvement followed by rapid reduction of prices, so a look at the current top of the line can provide a glimpse of what may be affordable in the future. Electrostatic plotters and color laser printers show great promise for better resolution and more permanent colors, as do the advances in thermal printers. Continuous-tone printers, such as the Kodak color copiers, are beginning to appear and will soon be able to interface directly with computers or video sources. Look around; many of these options are already available through services at more or less reasonable rates.

Perhaps soon, artists will not have to base their choice of hardcopy on issues of expense or permanence, but only on the look and "feel" of the final product. ■

Nancy Freeman is a traditional and computer painter, whose work has been highlighted in books, magazines, several solo shows, and SIGGRAPH. Write to her c/o AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

Manufacturers' Addresses

C-Tech Electronics
(A division of C-Itoh Digital Products)
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714/660-1421

CalComp
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Anaheim, CA 92801
800/CAL-COMP
714/821-2000

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343 State St.
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504/455-0341

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OR

How to Create and View 3-D Stereographic Images On the Amiga with Ten-Cent Colored Glasses

NOT ALL THAT long ago, people used to get a big kick out of a dime's worth of cardboard and colored celophane. Yes, they were wearing those weird red-and-blue glasses to watch early Hollywood 3-D features or to read those blurry-looking comic books from the 1950s. Sophisticated and expensive laser technology and holography will soon give us fancy three-dimensional photography without the specs, and those funny glasses will wind up even further to the back of Grandma's attic. ►

By Gene Brawn

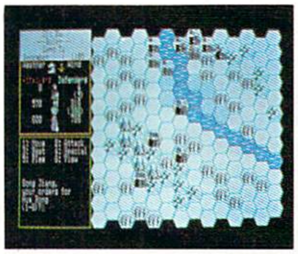


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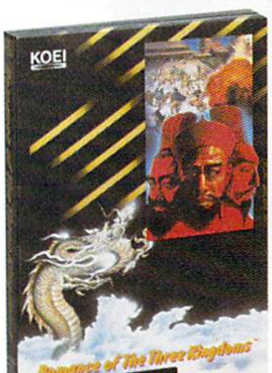
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But hold on—there's still some mileage left in those goggles! With a little old-fashioned technique and a minimum of equipment, you can learn to create your own 3-D pictures—and it's not complicated, time-consuming, or expensive. All you need is your Amiga, a digitizer, a few pointers on stereographic 3-D. . . and, of course, the glasses!

One, Two, Three-D

While you can create a stereo picture from scratch, we can make our tutorial a lot simpler by converting for viewing on your monitor an existing *stereograph*—one of those old photographic *stereo pairs* mounted on a stiff card (like the one in Figure 2) to be viewed with a *stereoscope*. (For more detailed definitions of the terms presented in italics in the text, see the "Stereographer's Glossary" accompanying this article.)

You can create your first 3-D masterpiece in a few simple steps: Find a stereo picture, digitize it, convert it to a red-blue *anaglyph* (see Figure 1), and display it. You could display the stereo pair on your monitor without converting it to an anaglyph, but you would waste space and severely limit the size of the image. Instead, if you superimpose the two pictures, you can display them full-sized. If you tint the two pictures in their complementary colors (usually red and cyan/blue) and then put on similarly colored glasses; *presto*! you enter the third dimension.

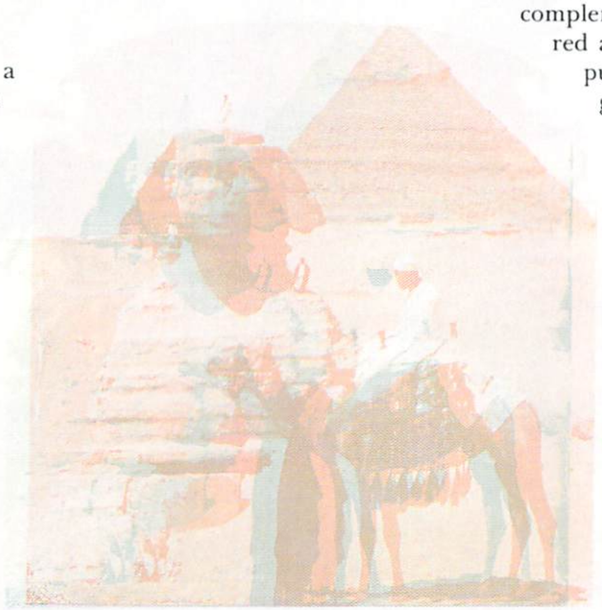


Figure 1. An anaglyph (above) is a three-dimensional illustrated or photographic view made up of two superimposed images (the stereo pair in Figure 2) each in a complementary color.

This method is easy and inexpensive but there are some drawbacks. Even though the finished picture is composed of reds and blues, your 3-D image will be black and white because as they are complementary colors, red and cyan will cancel each other out. Also, such images often tend to be dark because the colored lenses in the glasses absorb light. To remedy this problem simply adjust the brightness and the contrast on your moni-

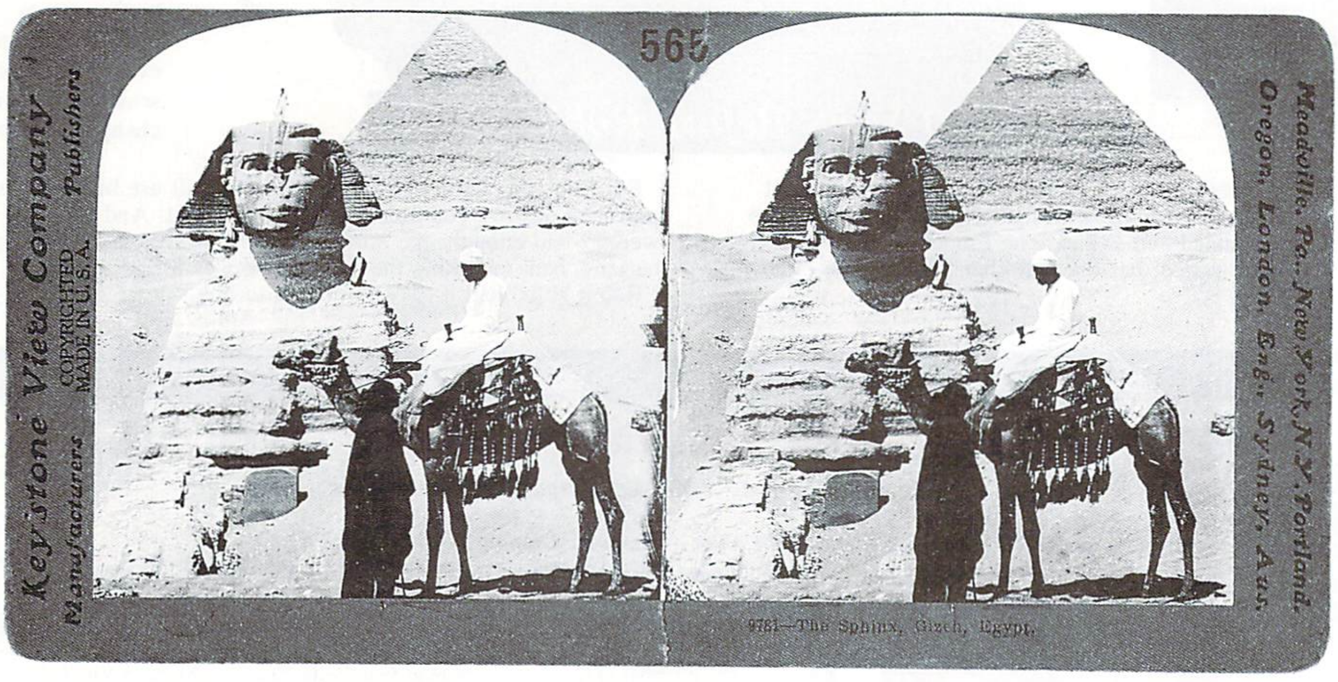


Figure 2. A stereograph (above) consists of two stereo pairs usually mounted on a stiff piece of cardboard. If you can't find an example of your own for the purpose of this tutorial, use this one—you can reproduce it and resize it to fit your needs.

tor while wearing the glasses. If you absolutely need color, you will have to make use of the liquid-crystal-display (LCD) shutter-lens approach employed by X-Specs 3D, which synchronizes the LCD shutter glasses with the monitor. (Although I do not discuss the X-Specs method here, see *Alternate Views* in the "Stereographer's Glossary" for more on this technology. If you do wish to create images for X-Specs, however, you can apply nearly every technique that you learn in this article.)

Although converting an existing stereograph is easier than creating from scratch, you still have the often difficult task of finding a stereo pair—two complete photographic images (one for each eye) placed side by side for viewing. Stereo pairs are better to use than red-and-blue comic-book style images because printed anaglyphs do not digitize well. Start your search with any of the books listed in the "3-D Resources" sidebar accompanying this article. If you still cannot find a stereo picture, look for sterographic cards in antique stores or used-book stores.

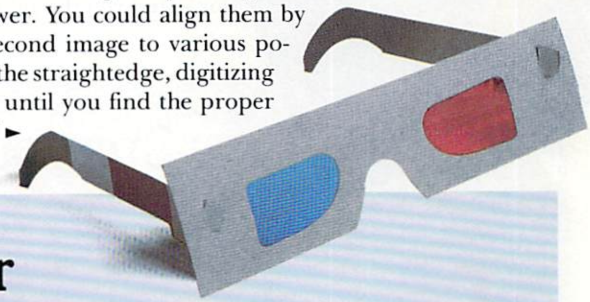
Do not be tempted by images with fine detail—stick to big, bold images with easily recognizable subjects. Images with a lot of depth—specifically, clear separation between foreground and background elements—convert best to the television-sized screen.

After you find a suitable stero pair, you need to fill your 3-D studio with the necessary hardware and software: a digitizer and software (I recommend NewTek's Digi-View, $199.95, which we will use in this tutorial), a pair or two of red-and-cyan (or blue) cardboard glasses (see "3-D Resources"), and a video camera (Digi-View's Panasonic 1410 is fine). These items are easy to obtain and relatively inexpensive.

Eyes Straight Ahead!

With the necessary tools in hand you are now ready to work. For a successful 3-D image, you must align the tops and the bottoms of the pictures so they are on the same horizontal plane. If the images do not share the same baseline, the brain cannot fuse them properly and the result is usually a big headache. To ensure proper alignment, frame one of the two pictures so the image fills your monitor. Place a long straightedge (a ruler or yardstick) along the bottom of the card or book and tape it down. Replace the image with a piece of graph paper and digitize it by selecting Red in the Digi-View menu. Slide the paper along the straightedge about an inch to the right or left and digitize again, this time as green or blue. When you display the digitized image, you will see two grids, one red and the other green. If the grids are not aligned correctly, their lines will not be parallel.

Vertical alignment is a little more involved. The very nature of the 3-D process dictates that the two pictures in a stereo pair are not identical; each is offset at a different angle depending on its distance from the viewer. You could align them by sliding the second image to various positions along the straightedge, digitizing it repeatedly until you find the proper amount of ►



A 3-D Primer

UNLESS YOU ARE a scientist, you probably don't realize that the space between your eyes (the interocular distance) plays a key role in seeing 3-D. This two-and-one-half-inch gap provides the basis of our binocular vision, allowing us to judge relief and depth up to about one hundred meters. Beyond that, we get depth perception by observing and comparing relative size, shadows, movement, and color.

A very common technique in 3-D photography is to create a viewing point that simulates a wider-than-normal interocular separation. Called "hyperstereo," it has the effect of increasing the depth and the roundness of the object and is often used to enhance the relief of landscapes, panoramas, and aerial surveillance photos. If you increase the interocular distance too much, however, your mind will have difficulty registering the images and you will probably end up with another headache. If there is too little interocular separation, you will produce an effect called "cardboarding"—the objects in the picture lose their depth and appear two-dimensional.

Another important ingredient in the 3-D recipe is convergence. The process of convergence in a stereoscopic camera is the same as in your own binocular visual system; both determine the 3-D plane. The point of convergence is that point in space where the center of each image is identical (this point, of course, has no relief). Anything beyond the point of convergence will be behind the screen (the 3-D plane of convergence) and anything in front of it will look as if it is coming out of the screen.

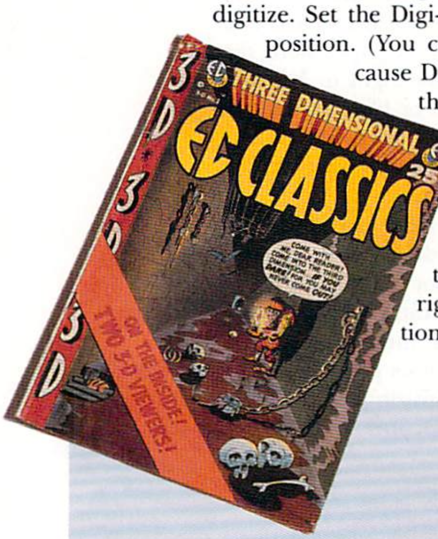
The point of convergence is normally the point of focus. . .but not always. Another common stereographer's trick is to move the focus in front of or beyond the 3-D plane. Be careful, though, many people have difficulty resolving these combinations. Try viewing stereographs by focusing on an object in the distance as you bring the picture up to your face. Although it might sound easy, it is difficult to master. □

—GOB

depth. Position half of the stereo pair along the straightedge so that either of the images is centered on your monitor. Now make a visible mark on the straightedge that corresponds to the center of your picture on the copystand.

For every $1\frac{1}{2}$ inch of the picture width, offset the mark from the center by $\frac{1}{32}$ of an inch. For example, in a standard stereograph each picture is about three inches wide and the center is at $1\frac{1}{2}$ inches. Make marks on the straightedge $\frac{1}{16}$ of an inch to either side of this center point. Label the left mark "red" and the right mark "blue." Later on you will use these marks to align each of the images when you digitize the stereograph.

With the stereo pairs aligned, it is now time to digitize. Set the Digi-View filter wheel to the Clear position. (You could remove it altogether because Digi-View will automatically add the colors for you, but if you do not have a pair of red-and-blue glasses, the filter wheel can provide a good substitute. Hold the wheel to your eyes with the left eye looking through the red portion and the right eye through the blue portion—and you thought you looked strange in the glasses!) You can load and run the software in any resolution. I normally use the 32-color lo-res interlaced mode, although I also have had good results with hi-res mode.



When you are ready, find the center points of each half of the stereo pair and mark them on the bottom edge of the card. After aligning the center of the left picture with the red mark on the straightedge, select Red in the menu and digitize. Using the blue mark on the straightedge for alignment, slide the other half of the stereo pair into place and digitize that image, this time selecting Blue in the menu. Then select ►

Manufacturers' Addresses

Haitex Resources
PO Box 20609
Charleston, SC 29413
803/881-7518

NewTek
115 W. Crane St.
Topeka, KS 66603
913/354-1146
800/843-8934

Stereographer's Glossary

Alternate Views A 3-D display method using a flickery combination of film (or video) frame alternation and electro/mechanical shutter glasses to achieve the separation of views for each eye. Shutter glasses alternately block the view of one eye so that the other (viewing through the clear lens) sees just one-half of a stereo pair. If the stereo pairs are alternated rapidly enough to initiate the persistence-of-vision phenomenon, they will fuse into a three-dimensional image (100 frames per second is optimal). This technique was first tried in the 1920s and was resurrected in the 1980s— this time with a twist. Liquid Crystal Display (LCD) lenses are used in place of the original mechanical shutters in Haitex Resources' X-Specs 3D glasses ($124.95—for a review of X-Specs 3D, see Dec. '88, p. 111). Based on the alternating frame principle, these electronic spectacles are synchronized to the Amiga's RGB display in order to achieve the 3-D effect.

Anaglyph A three-dimensional illustrated or photographic view made up of two superimposed images, each in a complementary color (usually red and cyan or red-orange and blue). When viewed through similarly colored lenses, the superimposed pictures fuse into a fully three-dimensional image. This is the only format used commercially for all visual media (print, film, and video).

Stereo Pair Two photographic images (or illustrations) positioned side by side. When viewed with a stereoscope the two slightly different images merge to form a stereoscopic picture. Each half of the stereo pair simulates the view from one of the eyes.

Stereoscope An optical instrument with two lenses to help the viewer to combine the stereo pairs of a stereograph.

Stereograph A photographic stereo pair mounted on a stiff card and normally viewed with a stereoscope. Each of the stereo pairs measures about three inches square and the mount measures about three and one-half by seven inches. From the 1850s until the 1930s hundreds of millions of stereographs were sold; thus, the first modern mass medium was created. □

Display to merge the two images on the screen and put on your glasses to enjoy the result.

Blunders, Goofs, and Gremlins

If your masterpiece somehow falls short of your expectations, don't worry, you can probably iron out the wrinkles. If one side of the picture appears larger and closer to the camera, the camera was probably not perpendicular to your subject. This phenomenon, called "keystoning," causes 3-D pictures to seem fuzzy or hard to focus. To conquer this gremlin, use an inexpensive stick-on level to check the alignment between the camera and the base of the digitizer.

Most stereographs are curved to enhance the stereo effect while viewing. The curve causes no problems for the eyes, but it makes it difficult to align the image with the camera. Placing a heavy piece of glass over the card will flatten it enough to ensure accurate registration and good camera exposure.

Occasionally, even though you have followed all the rules, your 3-D image will not convert properly. The problem is most likely poor registration of your original stereograph. You will have to digitize the left (red) picture using the center mark for registration. Then, for the second (blue) exposure, ignore the center marks on the card and slide it to the left or to the right and redigitize. Repeat until you get good 3-D. This could prove to be a tedious process and may take quite awhile.

Whether or not your 3-D image gets launched on your first attempt, you will be dazzled by the results. So, sit back, put on those glasses, and be swept back to the days when 3-D was still the best show in town. ■

Gene Brawn is a graphics designer, a television director, a digital animator, and a contributing editor to AmigaWorld. *Write him c/o* AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*



3-D Resources

BOOKS

Stereoscopic Transmission
Raymond and Nigel Spottiswoode
University of California Press
Berkeley and Los Angeles
1953

Stuffy, technical, but indispensable. Authoritative information from the leading 19th-century European practitioners. No stereographs.

Stereoptics
Leslie P. Dudley
Macdonald & Co Ltd.
London
1951

Brief, but valuable. Hands-on experience from an English inventor. Good for anyone who needs practical, nuts-and-bolts information.

Stereo Views
William Culp Darrah
Times News and Publishing
Gettysburg, PA
1964

Everything you ever wanted to know about stereographs. Aimed at the collector. Contains numerous poor-quality, full-sized reproductions of stereo pairs.

Stereoscopy
N. A. Valyus
The Focal Press
New York
1966

A translation from the Russian. Arguably the most complete volume devoted to the stereoscopic process. Very technical. Several examples of stereo pairs and anaglyphs are included.

American Cinematographer
Volume 55, No. 4
April, 1974

The entire issue is devoted to 3-D. My primary reference.

Stereo Realist Manual
Willard D. Morgan and Henry M. Lester
Morgan & Lester
New York
1954

Lots of stereo pictures. Many in color. A great guide for the novice sterographer.

ANAGLYPH GLASSES

3-D Photo World, Fach
D-7858 Weil Am Rhein
West Germany
and
CH 4020 Basel
Switzerland

The 3-D Zone
Ray Zone
1872 Hillhurst Ave.
Los Angeles, CA 90027
213/662-3831
$4.50

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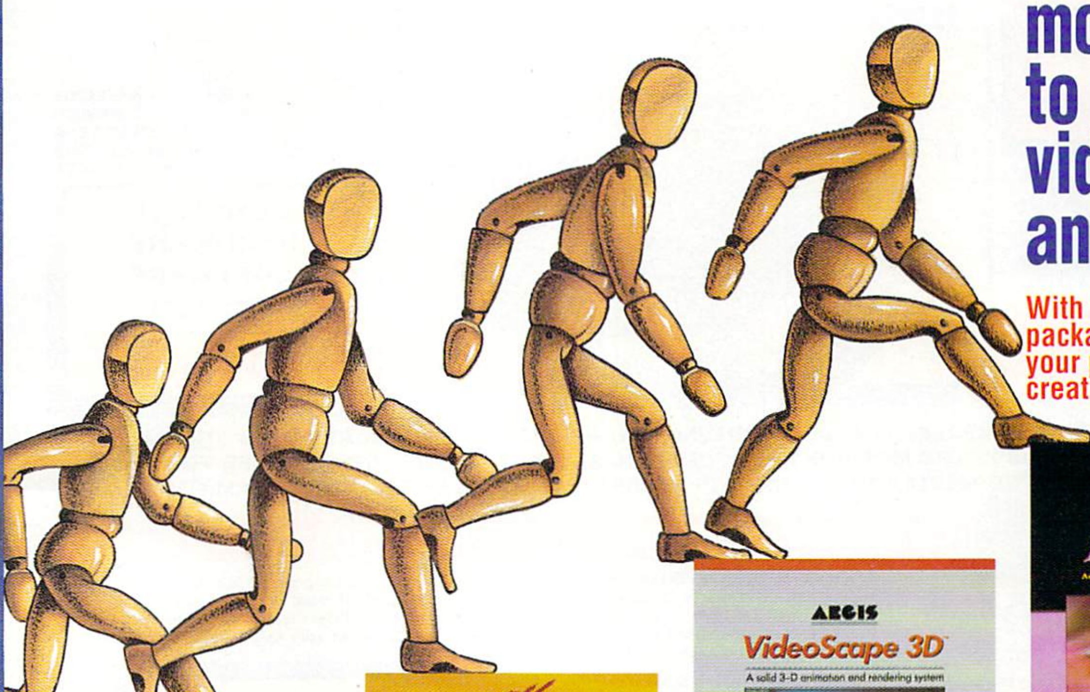
National Stereoscopic Association
PO Box 14801
Columbus, OH 43214

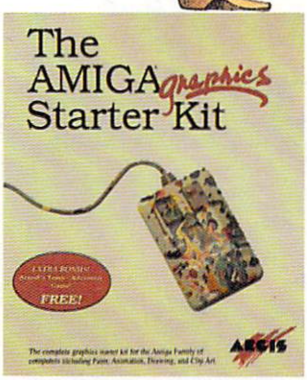
"Stereo World," the Association's monthly journal, recently published its first full-color issue. Highly recommended. □

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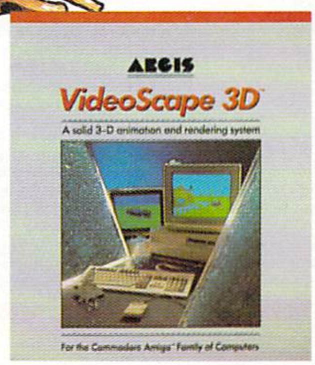
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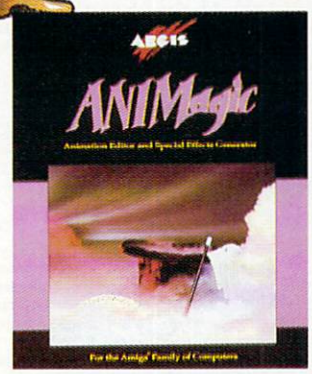
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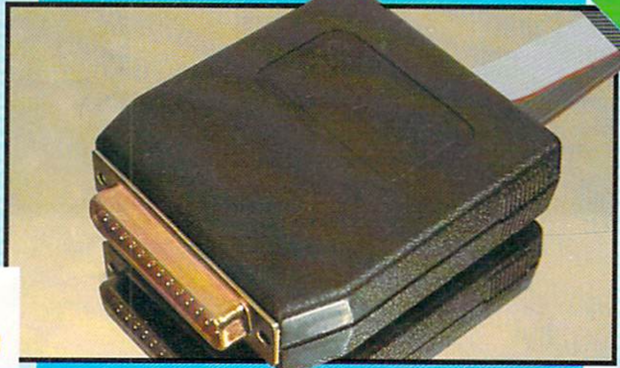
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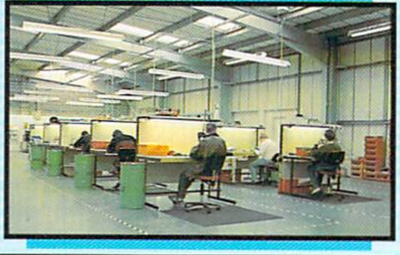
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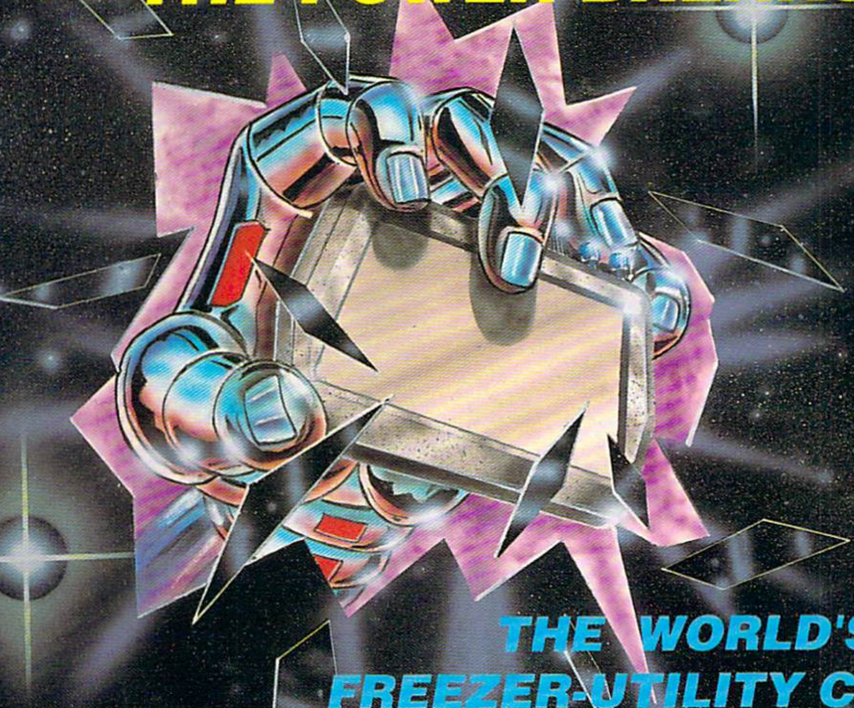
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Evolution or Extinction?

THE FUTURE OF THE AMIGA 1000

Will expansion and upgrade options ensure the survival of the A1000, or have advancements in Amiga technology already made it obsolete?

The rumors of the Amiga 1000's death have been greatly exaggerated. When Commodore ceased production of the machine upon introducing the Amiga 2000 and 500, industry pundits predicted rapid extinction and consigned the A1000 to the junk heap of technology. Three years later, however, it still hangs on tenaciously through the continued support of loyal users and third-party developers.

Now this survivor faces a tougher challenge. Unlike previous upgrades, the new version of the operating system (referred to in the past as 1.4) and the Enhanced Chip Set (ECS) will not be directly compatible with the A1000. On the eve of a new generation of Amiga hardware, A1000 owners again must decide: Upgrade or trade in on a newer model?

When deciding, ask yourself the following questions: Are the types of expansion devices that you are likely to purchase now or in the near future available for the A1000? Are the companies making these devices committed to supporting the A1000 in the future? Does your local Amiga dealer stock these items? Are the features of those peripherals comparable to the ones available for the A500 and A2000? Are they comparably priced? Can you use these add-ons with an Amiga 2000-series (or newer) system if you choose to upgrade? Will the A1000 be able to keep pace with the important changes Commodore is making to the system hardware and software (see the sidebar "Aging Gracefully")?

No Storage Shortage

Taking all of these factors into consideration can make the decision-making process quite complex. Let's take ►

By Sheldon Leemon





the example of hard drives, one of the most popular upgrades. Availability of hard drives should not be a cause for concern to A1000 owners. While the most popular A500 and A2000 hard-drive manufacturers (Great Valley Products, Microbotics, and Commodore) do not make models for the A1000, many other companies (Supra, Progressive Peripherals, Pre'spect Technics, Expansion Technologies, Xetec, Spirit Technology, Interactive Video Systems, Compsec, and M.A.S.T.) do.

Be aware, however, that some A1000 drives do not have performance and features equal to those commonly found on drives for the newer machines. Within the Supra line of systems (from 20 to 380 megabytes), for example, the A1000 interface is slower than the A2000 interface, and it does not offer an optional RAM expansion module as the A500 model does. Several A1000 interfaces such as the Supra 1000, M.A.S.T.'s Tiny Tiger (accompanying drives range from 30MB to 180MB), and Progressive Peripherals' Vault (with drives from 20MB to 65MB), do not support the Kickstart 1.3's autobooting feature. Even those systems that do support it, however, allow you to load Workbench only from the hard drive. Unless you install a Kickstart ROM module such as Kwikstart Plus (Michigan Software, $159), you must boot Kickstart from a floppy disk.

RAM expansion is also a rarer option on A1000 hard drives than on those for the A500. The convenience of this configuration is worth the search: With it, you need only plug one box onto the expansion bus to have both a hard drive and extra memory. While you could attach a hard drive with pass-through and plug a memory module into it, the A1000 is notorious for being fussy about working with certain combinations of external expansion devices (more about this later). Most importantly, the all-in-one solution is much cheaper than the two external modules or an external drive and internal memory, because the cost of a combination board is usually not much more than the hard-drive interface alone. For the A500, you can find several hard-drive and RAM-expansion combinations, such as GVP's Impact-500 series (with drives from 20MB to 100MB) and Commodore's A590 (20MB only). You will have to look a little harder to find combination interfaces for the A1000; Xetec's FastTrak line (drives from 20MB to 80MB) is available for both models.

The extent to which A1000 hard-drive systems are transportable to the A500 or A2000 varies quite a bit. The typical A1000 hard-drive setup consists of a drive mechanism with its own case and power supply, and an interface card that plugs into the expansion bus. Moving these systems to an Amiga 500 will probably require you to change the interface card at the very least. If you decide to move up to an A2000, however, you will probably want to move the hard drive inside the computer's case. You will no longer need the case or power supply, nor be able to use the interface. All you will be able to salvage is the drive mechanism itself.

If you shop carefully, however, you will find exceptions to this rule. The M.A.S.T. Tiny Tiger drive plugs into the parallel port, so with the proper cabling, you can attach it to either an Amiga 500, 2000, or 1000. Progressive Peripheral's Vault drive attaches via a cable that can be plugged into either the expansion bus of the 1000 or A500.

The ability of the Vault's cable to plug into either machine points out an interesting but little-known fact. The Amiga 1000 and 500 expansion ports are identical except for positioning and one signal line (the A500's has a 7 MHz clock line that the A1000's lacks, but few peripherals make use of the signal).

Playing the Slots

YOU CAN PLAN for the future by expanding your Amiga 1000 with an expansion box that lets you use cards for the Amiga 2000 with your A1000. Typically, these boxes plug into the A1000's bus and come with two or three card slots, a power supply, and perhaps a drive bay for an extra floppy or hard drive. Your best choices are Pacific Peripherals' SubSystem ($299, three slots), Expansion Technologies' Tool Box ($189.95, two slots), and Micro R&D's TB-2122 ($249.95, two slots).

Although the idea of a box that lets you plug in a wide range of the less-expensive A2000 expansion cards is quite attractive, you should be extremely cautious when buying one. Not all boxes work well with all A1000s, with all peripherals, or with multiple peripherals. Because of noise and loading problems, using multiple devices simultaneously on the A1000 expansion bus is an iffy proposition. The potential causes for these problems include slow PAL chips on the A1000 daughterboard, inadequate grounding, and the machine's unbuffered expansion bus. While corrective measures such as changing the PAL chips can often remedy these problems, keep in mind that getting the A1000 to work with multiple devices may not be as simple as plugging everything in and turning it on.

If you plan to purchase an expansion chassis, check in advance with the manufacturer to see if it works well with the boards that you plan to buy. You should also purchase all of the components from a dealer who is aware of potential problems, and who will be willing to give you a refund if the expansion devices will not work together properly in your system. □

—SL



Aging Gracefully

EVEN WITH MORE memory and storage, can the Amiga 1000 keep pace with newer models sporting the Enhanced Chip Set and the new version of the operating system? Yes, with a little help.

The new One-Meg Agnus chip, which allows Amiga 2000s and 500s to access one megabyte of chip RAM, comes in a square package that is a different size and shape than that of the A1000's Agnus chip. You cannot simply plug in the enhanced chip then get back to work. While the forthcoming enhanced Denise chip will fit in the A1000, it will provide its new graphics modes only if the One-Meg Agnus is installed. (See next month's *AmigaWorld* for more on the new chips.)

The new system-software changes give A1000 owners something further to think about. For the first time, Kickstart will need 512K, instead of 256K. On the A500 and A2000, you can replace the 256K ROMs with 512K ROMs. Although Commodore will make a 1.4 Kickstart disk available to A1000 owners, the A1000 has only 256K of Writeable Control Store memory allocated to Kickstart. The new Kickstart will eat up 256K of user memory, reducing the amount of chip RAM available to applications to a mere 256K on a 512K system, an almost unusable configuration.

Diehard A1000 fans, don't despair; two developers are offering solutions. Both Greg Tibbs' Rejuvenator board (distributed by Expert Services, $499.95 fully loaded) and Delaware Valley Software's DVS-Wonder ($399.95 complete) are replacement daughterboards for the Amiga 1000. They provide a socket for the new Agnus chip, a megabyte of memory that can be used as chip RAM (the DVS also comes in a 512K version), and a battery-backed clock. The A1000's 512K of former chip RAM becomes true fast memory when either board is installed. The Rejuvenator has a socket for the 512K 1.4 Kickstart ROM, while the DVS-Wonder has sockets for Kickstart 1.2, 1.3, and 1.4. They will allow you to switch to a disk version, as well. Finally, the Rejuvenator board adds an A2000-style video slot to the A1000, and the DVS adds an audio-filter switch. Both boards promise to help reduce noise problems on the A1000's expansion bus.

Commodore, however, has its own plan to deal with the potential problem of the A1000 becoming obsolete. At the end of January, the company announced a program that allowed owners to trade their Amiga 1000s for substantial discounts on the purchase of Amiga 2000s, 2000HDs, or 2500s. From the user's standpoint, this offer was not much different from earlier deals. The big change is what happens to the units that are traded in. Previously, dealers could resell the used A1000s. This time, however, Commodore asked the dealers to return the A1000 keyboards for a rebate, presumably to take the machine out of circulation altogether. Although this program is scheduled to end by March 31, Commodore has been known to extend and reoffer such deals. □

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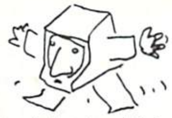
The major differences between the two are that the A500's expansion connector is rotated 180 degrees with respect to the A1000's, and it is situated a couple of inches lower in the case. As an unintended result, most A500 peripherals that plug into the expansion bus will work on the A1000. You simply plug them in so that they face the back of the machine, and wedge a support underneath. (Rumor has it that even within Commodore, A590s are often used with A1000s.) When you decide to change machines, you will find selling an A500 hard drive much easier than peddling one for the A1000.

RAM Reckoning

If you do not opt for in-drive memory expansion, your alternatives are an external board that plugs into the expansion slot (Microbotics' StarBoard, Compsec's AX2000, and M.A.S.T.'s MiniMegs) or an internal board (Spirit's IN1000 and Michigan Software's Insider II). All come populated (with RAM chips) or unpopulated (a bare board only). Internal boards require more expertise to install, as you must open the computer and plug the board into the processor socket on the A1000 motherboard. On the plus side, internal boards leave your expansion slot free and come with a battery-backed clock/calendar (which the external boards do not have). They are likely to have less resale value than an external board, however, and also offer a little less expansion, usually being limited to 1.5 megabytes. External boards generally offer two megabytes.

As far as portability goes, you cannot use most A1000 memory boards directly on the A500 or A2000 (though the Microbotics StarBoard can be plugged into the processor slot of an A2000 with a special adapter). As with hard drives, you will probably have to abandon the board and use only the main components, the memory chips. Even this might not be possible; many A1000 memory boards use the older 256K RAM chips, while newer boards for the A500 and A2000 use 1-megabit chips. If portability is your main concern, use an A500 memory expansion module (or combination RAM expansion/hard drive) backwards on the A1000, or opt for an expansion chassis. (See the sidebar "Playing the Slots.")

Other than hard drives and memory expansion, few devices use the expansion connector on the side of the A1000 or A500. Because the A1000's other ports are similar to those on the Amiga 500 and 2000, you can use expansion devices for those ports on the A1000 with an adapter. The serial and parallel ports on the A1000 are of a different gender than the corresponding plugs on the A2000 and A500. Because some of the lines are configured differently ►



(power connections are on different pins), a straight gender-conversion cable will not work. You need an adapter plug, particularly if the device is one that draws power from the computer, such as an audio or video digitizer. Though devices with the proper plug for A1000s are still around, their availability is dwindling. The best source for an adapter is Redmond Cable.

The video port on the A1000 is exactly the same as those on the other machines, so you can plug any external genlock directly into the A1000. Because the A1000 and A500 lack a video slot, however, they cannot use internal genlock boards.

Expand or Disband?

After considering the options, the question remains: Is it worth expanding an A1000 rather than trading it in? The answer depends on how much expansion you need and how much money you have. If you have already spent a bundle to expand your system with hard drives, memory, and maybe even processor accelerators, investing a few hundred dollars on a Rejuvenator or DVS-Wonder (see "Aging Gracefully") makes more sense than buying a whole new system. If, on the other hand, you have a one-drive 512K A1000 system and want a hard drive and lots of memory, it would clearly be wiser to trade the A1000 in for an A2000HD than to sink a lot of money into expensive add-ons. In-between cases may be a little harder to judge. Just remember that even if your A1000 is unable to keep pace with all of the latest developments, that doesn't render it instantly useless. There will probably be Amiga 1000s out there performing dependably for years to come, just as they have in the past. ■

Sheldon Leemon is the author of Inside Amiga Graphics *and other books, and he is a frequent contributor to many computer publications. Write to him c/o* AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

Manufacturers' Addresses

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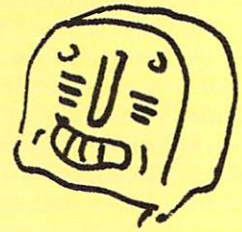
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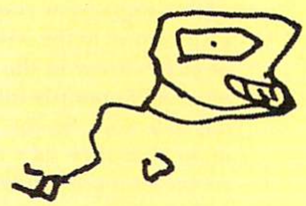
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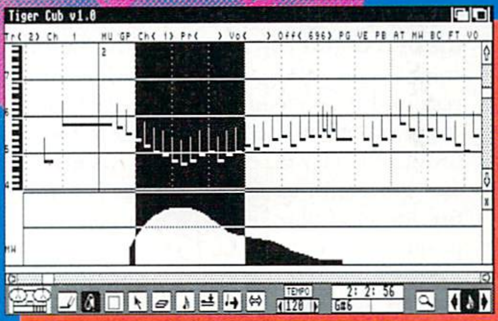
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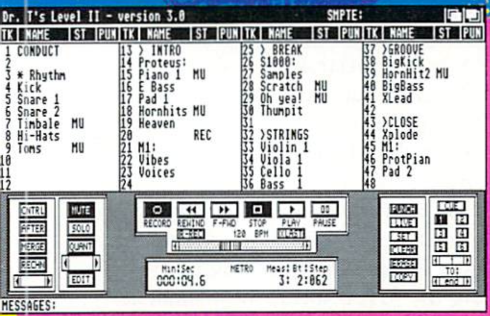
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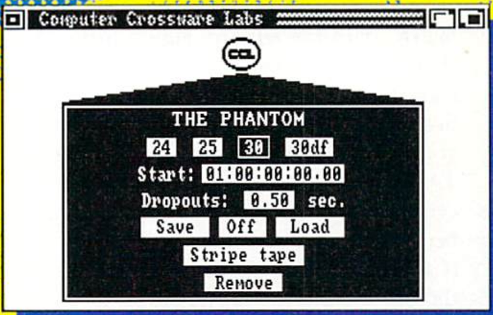
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Color Cycling

15

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

ALTHOUGH OVERSHADOWED BY newer and fancier Amiga animation methods, color cycling is still a viable—and exciting—animation technique. Hopefully, the tips outlined in this column will put color cycling back in your thinking caps for future projects. While I refer to DeluxePaint (Electronic Arts) tools throughout, the techniques apply to any paint package supporting color cycling.

FIRE WHEN READY

Color cycling operates only within palette ranges. (Consult your manual for details on setting these up.) DPaint's Shade and Blend modes also use these ranges, and the following exercise in painting flames will capitalize on this fact. In a 32-color palette, set up a Range of 16 palette positions for the fire colors. Make the first color black. Make the fifth color deep flame red, the eighth color bright yellow, the thirteenth color red, and the sixteenth color black. Now "Spread" the first color to the fifth, the fifth to the eighth, eighth to thirteenth, and thirteenth to sixteenth. This is your fire Range. Color zero (the first palette position) should also be black.

Select the first fire color, black, as background color and clear the screen to that color. Hit F5 (Shade) and paint the shape of the fire, using a half-inch round brush. With the left and right buttons, shade up and down the Range. The right button "carves" the shape of the fire to the background color, allowing you to shape fine tongues of flame. Hit TAB on the keyboard occasionally to cycle and test the effect. Now try the airbrush with a single pixel in the F7 (Cycle) mode. Sweep from the bottom of the fire toward the top in short, slow strokes. Be sparing; if the motion seems to be in the wrong direction when you cycle, reverse the arrow in the Palette requester by clicking it. The entire background is also color cycling because it is included in the Range. Cure that by "Filling" the background with color zero. Experiment to get the best combination of effects.

I once used this technique on a video animation destined for a legal presentation. I genlocked the fire over footage of a building. By cutting the fire out as a brush and shrinking it, we merely have to use the + and – keys to make it grow and shrink, and the X key to reverse it occasionally. With the cursor turned off, we recorded the brush moving in real time, stamping it around as the fire spread and grew. Although created with simple, inexpensive tools, the entire presentation worked very well. I have seen similar, but far less effective attempts done with complex Anims and insert-editing equipment. Always try simple solutions first; they may turn out best in the end.

CYCLIST'S REPERTOIRE

There are many interesting, often practical uses for color cycling. You can enhance the detail and impact of technical illustrations with with simple, sparing use of this technique. Show the direction of flow in pipelines or arteries in graphic fashion by drawing in the appropriate direction with Cycle mode. Or, you may highlight a cross section of a plant by painting it with one shade from a smooth Range of several greens. When the image cycles, the isolated region will have a pulsing glow.

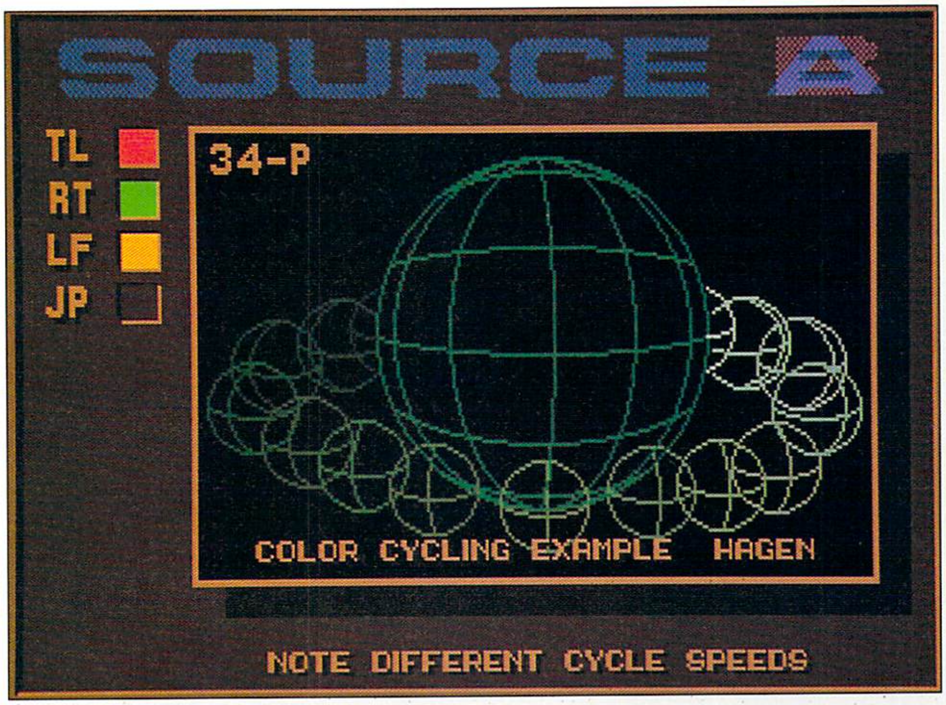
Try the "moving arrow" if you are looking for a good animation exercise. Establish a Range of any 16 colors. Choosing the first color, draw a small arrow on a black screen. With the next color, draw another arrow along the

You'll find there's still a lot of kick left in this old standby animation technique.

same path as the first. Continue until you have 16 arrows marking a continuous path back to the starting position. Then—and this is the key—go back to the palette and make all but one of those 16 colors match the background black of the screen. Now only one arrow is visible on screen. When you hit TAB, each arrow will become visible in turn as its color register cycles to the non-background color. An animated arrow appears to move around the screen. In a variation on this concept, you could make a walking character or a flying bird. Draw each successive animation position in the next color of the Range. Place the drawings close together, or overlap them slightly as in the schematic moon orbiting a planet in the accompanying illustration.

You can achieve a striking illusion of randomness by creating a series of screen elements using colors that are out of sequence with their Range positions. The lights on the control panel in the illustration provide a simple example of this effect. When cycled, they do not flow in one direction, but switch around in a less predictable pattern. I included a duplicate of the background brown in this Range to make it appear that a light is periodically off. To get the most effective results, set Speed quite slow so that lights blink every five seconds or so.

A tricky effect with which you may baffle even old paint-program pros is the shifting-text sequence. Choose a large bold font and type two messages that will display alternately in the same screen area. Make a checkerboard brush of single pixels large enough to stamp over each text message with the background color (see "Accent on Graphics," p. 52, Sept. 89, for more details on creating the checkerboard). Prepare a Range of two



Color cycling techniques provide the key to the moon that appears to orbit the planet above. Note also the lights in the control panel (left) which can be made to appear as if they are blinking on and off in a cyclical series. The overlapping checkerboard letters (upper right) are an example of the "shifting-text sequence" trick.

colors and set the Speed fairly slow. Both text messages are now checkerboards. Pick one up as a brush, select one of the two Range colors as foreground color, hit F2 (Color), and stamp the text in place on the screen. Pick up the other checkerboard message, select the second color, and carefully place the text over the first message. It should intermesh with the other checkerboard in the same way the letters A and B do in the illustration. Change one of the two Range colors in the palette to a duplicate of the background color. Only one message will now be visible. If you hit TAB, the two messages will alternate. In lo-res this will appear a bit coarse, but in hi-res it will look quite clean.

By combining different cycling effects on one screen, you can create a lot of action with great economy of disk and RAM space. A series of such screens run as a simple slideshow can make for a sophisticated presentation that will look as if it were created with more complex techniques. ■

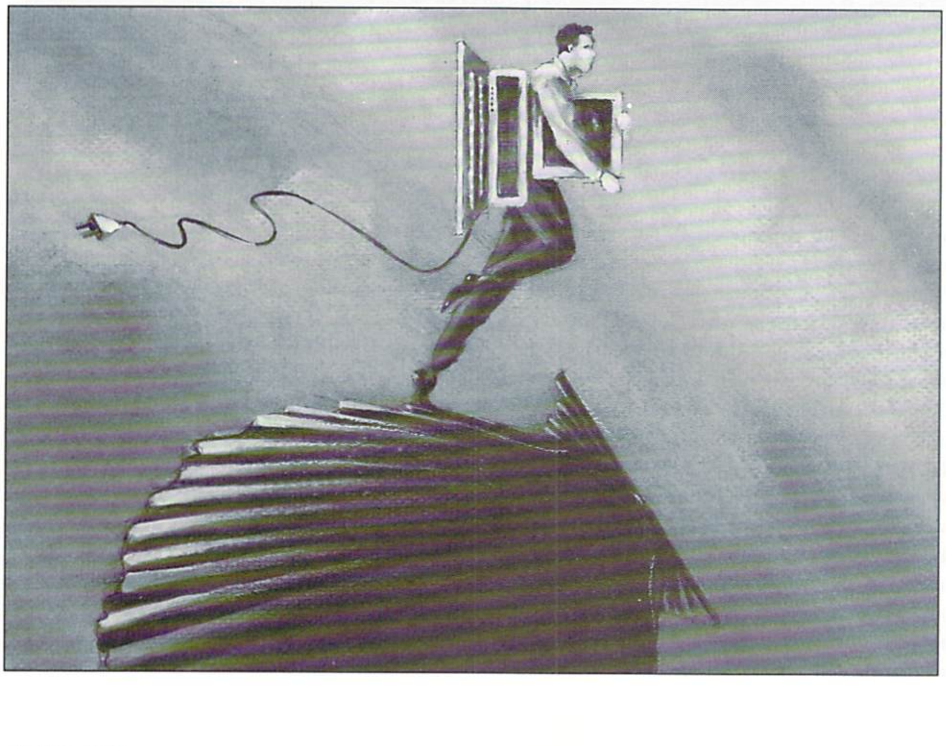
Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope.

Back to Basics Part 4

The Workbench isn't the only way you can work with your Amiga—as you will soon learn when our AmigaDOS experts introduce you to some "Shell games."

By Mark L. Van Name and Bill Catchings

IN THE FIRST three parts of this series, we have concentrated exclusively on the Workbench, the Amiga's graphical user interface. The Amiga, however, also has a second standard interface, the Shell. Although the Shell approach may seem less intuitive and more difficult at first, you will discover later that the Shell allows us to do some things that you cannot accomplish with the Workbench. So let's climb *into* our shells and learn a whole new way of working with our Amigas.



Shell Spoken Here

To start the Shell, open your Workbench disk (double-clicking on the disk's icon is the easiest way). The Shell is simply a tool on that disk. In the middle left side of the standard Workbench 1.3 window, you will see its rectangular icon with the label "Shell" and the characters "1>" in its upper-left corner. Open this tool as you would any other (again, double-clicking on it is the easiest way). A window running the full width and about half the height of the screen will appear. You are now in the Shell, ready to work.

Get used to a non-graphical environment when working in the Shell. The Shell's window contains no icons; in fact, it is essentially blank, except for the "1>" prompt in the upper-left corner. Unlike the Workbench, the Shell is a command ►

ILLUSTRATED BY KAREN STOLPER

line interface (CLI). In previous releases of AmigaDOS, the CLI was the only alternative interface—and this earlier, less powerful version of the Shell can still be found in 1.3 in the System drawer on your main Workbench screen. We urge you to stick with the Shell—it's just flat better than the older CLI.

A CLI is an interpreter of commands, commands that you must supply. You give those commands by typing them and then pressing the Return key to tell the Shell to start working on them. The characters "1>" are called the "prompt" because they tell you that the Shell is ready for a command. The "1" portion of the prompt is merely the number of this Shell among the Shells that you have active; remember that the Amiga is a multitasking system, so you could have many Shells active at once. If you did, the second one's prompt would be "2>", the third's "3>", and so on. So, for our first command, type

DIR

and then press Return. (*Note*: From this point on in our example commands we will assume that you know to press RETURN after the command and omit that from our instructions. Also, while we show commands in upper case so that they stand out from the rest of the text, you can enter them in any combination of upper- and lowercase you want; it makes no difference when using the Shell.) A list of words will scroll by. DIR, which is short for Directory, shows you the names of the files on your disk.

You will have noticed that DIR's list of files did not fit in the Shell's window, so the Shell scrolled the names automatically upward. This will not be a problem later when you become more used to the CLI format, but as we are going to work exclusively in the Shell for a bit and because it is helpful to see as much information as possible, go ahead and make the Shell's window fill the whole screen. (Enlarge it as you would any Workbench window: Use the bar across its top to drag the window to the top of the screen, and then pull the size gadget in its lower-right corner down to the lower-right corner of the screen. To grab either the bar or the size gadget for moving, just point at it and hold down the left mouse button.)

CRACKING THE SECRETS OF THE SHELL

Notice that the 1> prompt appears again on the next line following the list of files on your disk. This means the Shell is ready for another command. Type

DIR

so that you can see the file list again. Some of the names on that list should be vaguely familiar, because they are the same names as the drawers, tools, and projects you have already seen in the Workbench 1.3 window.

The Shell, however, does not call them drawers, tools, and projects. It has its own names for almost everything, even though it uses the same basic organization as the Workbench. For our purposes here, let's start at the top of the Workbench information hierarchy we discussed a few columns ago, with disks. Type

INFO

The resulting display tells you some use- ►

ful information about the disks that are currently in your Amiga. To keep things simple, we will examine only what it shows about your Workbench 1.3 disk, which we will assume is in your internal disk drive.

The display reveals that the Shell actually has two names for each disk: one under the heading "Unit" and the other under the heading "Name." Find the line with "DF0:" under Unit. DF0: is the unit name for your internal disk drive. You can use the unit name DF0: anytime you want to refer to the disk in your internal drive; similarly, if you have an external drive, you can refer to the disk in it by the name DF1:. You can also refer to any disk by the name that appears under the "Name" heading. Thus, in the Shell you can call your Workbench disk either "DF0:" or "Workbench1.3:."

Notice the colon (:) after the Workbench 1.3 name above. Like the colon at the end of the unit name DF0:, it must be included because it tells the Shell that you are referring to a disk.

Inside each disk, from the Shell's point of view, is a collection of zero or more files and directories. Directories are the Shell's version of drawers; a directory can hold files and other directories. You can spot the directories in the DIR listing by the label "(dir)" that appears to the right of each one. The disk itself acts as a sort of "root" directory; anything that is not in a named directory is in that root directory.

Everything that is not a disk or a directory is a file, regardless of whether the file is a project or a tool according to Workbench terminology. Even icons are files. If you look carefully at the directory listing, you will notice that for every directory appearing in the Workbench window—for example, the System directory—there is a file with that name plus a ".info" suffix. System has System.info, Utilities has Utilities.info, and so on. By convention, all Amiga programs name icon files in this manner.

It is a good practice not to end a file name with ".info" unless that file is an icon. You may do so if you wish—the Shell won't stop you—but it could confuse anyone else who needs to look at or work with your files. Also, be very careful about deleting any .info files, because a file without a .info icon file is not visible from the Workbench. For example, if you were to delete the file Utilities.info, you would no longer be able to see the Utilities drawer from the Workbench. Of course, there are files that you can see *only* from the Shell. Note, for example, that your DIR file listing shows directories named "c" and "s" that you cannot see from the Workbench because they have no icons and thus no .info files.

Earlier in this "Back to Basics" series, we learned to perform some basic Workbench operations on disks, drawers, tools, and projects. Similarly, there are some basic Shell commands that allow you to work on disks, directories, and files. Next time, we'll talk about some of the more important of those commands, as well as some tricks for entering them. ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Dr., Durham, NC 27703.*

Circle 58 on Reader Service card.

Joystick Handling in C

By David T. McClellan

FOR GAMESTERS, FLYING, fighting, and fast maneuvering are often easiest with a joystick. For C programmers, joystick control is a little more challenging.

Programs communicate with both the mouse and the joystick via the gameport.device, a device handler that reads button and movement events from the joystick (or mouse) and sends messages to your program. To talk to the gameport.device, you must first create a message port and an IOStdReq message struct, then use them to open the device. Consider the following code fragment, which should be placed after your include file specifications. (You'll need exec/types.h, exec/devices.h, exec/io.h, devices/gamport.h, and devices/inputevent.h.)

```
#define BPT 1 /* Back or 2nd gameport */
/* the mouse port is unit 0 */
struct MsgPort *joyport;
struct IOStdReq *joymsg;
/* any other declarations would go here */
if ((joyport=CreatePort (NULL,0))= =NULL
  /* code to report an error */
else if ((joymsg = CreateStdlo (joyport))= =NULL)
  /* code to report another error */
else if (OpenDevice ("gameport.device",BPT,joymsg,0) !=0)
  /* code to report last error */
```

This opens the gameport.device and sets up joyport and joymsg as channels to communicate with it. While the above opens the device using the rear port, it can report events from either. If you open the front port while Intuition or a console device is active, however, they will receive at least every other event.

After you open the device, you must tell the gameport.device whether it's communicating with a mouse or a joystick. If using a joystick, you must specify which message format you desire. Both formats tell you when the button is pressed and released and use the same physical type (analog) of joystick. The Absolute joystick format sends a message only when the joystick *changes* position; thus it gives precise but infrequent messages. In addition to sending position change events (messages for position changes), the Relative joystick format fires off a message every few clock ticks if the joystick is held in a position other than centered. If you want the game player to press and hold the joystick forward to continue moving forward through a maze, for example, use the relative joystick format. You set the joystick type by sending a GPD_SETCTYPE message to the gameport.device:

```
BYTE buffer[100];
/* program-specific code here */
buffer[0]=GPCT_RELJOYSTICK;
/* or GPCT_ABSJOYSTICK */
joymsg->io_Command=GPD_SETCTYPE;
joymsg->io_Length=1;
joymsg->io_Data=(APTR) buffer;
SendIO (joymsg);
WaitPort (joyport);
GetMsg (joyport); /* to check for errors */
```

FINGER ON THE BUTTON

After setting the type, you must tell the device what kind of actions can trigger a gameport event (trigger events), such as button presses and releases, and x/y movements. You can also instruct it to send timeout messages, in case the user doesn't do anything in a specified period. You pass these settings to the gameport.device in a GamePortTrigger structure, as shown:

```
struct GamePortTrigger
{
  UWORD gpt_Keys;/* Key press/release flags */
  UWORD gpt_Timeout; /* Timeout period in 1/60th sec; */
                     /* 0 if forever */
  UWORD gpt_XDelta; /* Set to 1 for joystick */
  UWORD gpt_YDelta; /* Set to 1 for joystick */
};
```

Later, set gpt_Keys to (GPTF_UPKEYS | GPTF_DOWNKEYS) to catch button releases and presses, and gpt_Timeout to the length of time (in 1/60s of a second) you wish to wait for another event before sending a timeout message. (The last two fields are more useful for mouse tracking and have to do with the size of mouse movement required to send a message.) To inform the gameport.device of your choices, ►

set up another message in joymsg using the trigger conditions as the io_Data of the message, and an io_Command of GPD_SETTRIGGER.

With the parameters and structures defined, you are ready to work on receiving input events. Input events come in as fields in an InputEvent struct (see the include file devices/inputevent.h). Below is a template for reading and decoding joystick messages.

```
struct InputEvent joyevent;
int code, dx, dy;
/* program-specific code here */
joymsg->io_Command=GPD_READEVENT;
joymsg->io_Data=(APTR) &joyevent;
joymsg->io_Length=sizeof(struct InputEvent);
joymsg->io_Flags=0; /* To avoid Quick I/O */
for (;;) /* Loop until quit */
{
  SendIO (joymsg);
  WaitPort (joyport);
  GetMsg (joyport);
  code=joyevent.ie_Code;
  dx=joyevent.ie_X;
  dy=joyevent.ie_Y;
  if (code==IECODE_LBUTTON)
    /* code to handle a button press goes here */
  else if (code==(IECODE_UP_PREFIX | IECODE_LBUTTON))
    /* handle a button release */
  if (dx > 0)
    /* react to a joystick movement right (or up or down) */
  else if (dx < 0)
    /* code for joystick movement left (ditto up/down) */
  if (dy > 0)
    /* react to joystick up */
  else if (dy < 0)
    /* handle a joystick down message */
    /* Process buttons, moves. Quit when appropriate. */
} /* end for */
```

Each iteration of the loop will pick up another joystick event and process it (the wait is a nonbusy wait, so multitasking goes on). The buttons, X moves, and Y moves are independent, and may all be present in a given message.

When you finish with the joystick and the program is ready to quit, return the controller's device type to "none" by setting its type to GPCT_NOCONTROLLER, just as you set it to GPCT_RELJOYSTICK earlier. Finally, close the gameport.device, DeleteStdIO( ) joymsg, and DeletePort( ) joyport.

With a little practice, handling these routines will be as easy as blasting Cylons. ■

David T. McClellan is a contributing editor to Amiga-World. *Write to him at 104 Chevron Circle, Cary, NC 27511.*

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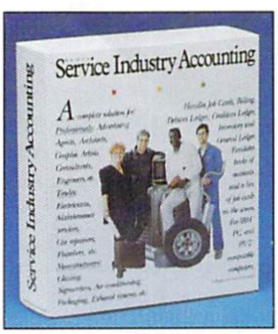
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THE GAME PRESERVE

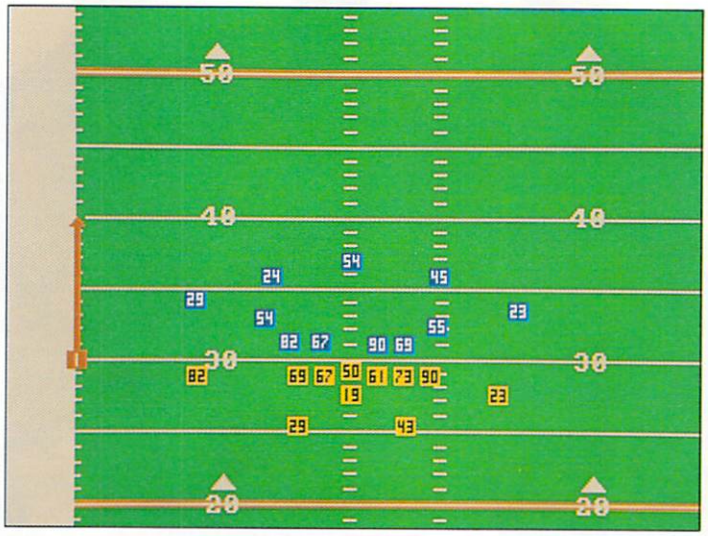
Professional Football Simulation

By Rick Teverbaugh

YOU WON'T VIEW an NFL game in quite the same way once you've played Professional Football Simulation. PFS is a football strategy game par excellence.

If you understand the basics of football, the positions, and the penalties, you can play PFS almost immediately. In mouse mode, you select your offensive or defensive plays by clicking on their names. Colored squares with uniform numbers play out the consequences of your call, while sound effects enchance the action. The teams provided are fictional, but you can create and edit each player, then rate them from 1.0 to 5.0 in 11 categories to model your favorite pro, college, or Pop Warner teams.

PFS manipulates time very accurately. If you use the 45-second clock, the number of plays in a game will be extremely close to the real NFL play count. Between plays, the down, yards-to-go, quarter, time, time outs left, and score are displayed on the scoreboard.



As head coach, you make the calls.

PFS' detailed play-calling and -creation features make the game shine. Once you master the 18 offensive and nine defensive plays of the beginner's playbook, try the standard game playbook with 113 offensive choices and 104 defenses. The creative and adventurous can design their own plays by typing a line of letters.

Consider IR X SELW.FB5-TQ.SELHB8FLOTEC as an example play. IR means an I formation strong right. X tells the halfback and fullback to switch positions in the formation. SELW tells the split end to take the left wing position in the formation. The period indicates that the formation is set. FB5 orders the fullback to take the ball and run to the 5 hole. The holes (gaps between linemen from the center to the outside) are labeled with odd numbers to the left and even numbers to the right. This run would be just outside left tackle. T means there will be trap blocking from the guard away from the point of attack, in this case the right guard. Q instructs the quarterback to toss the ball to the fullback instead of handing it off to him. The next period prompts the program that the basics of the ►

Crib Notes

By Peter Olafson

• The journey through Central Park in *Manhunter: New York* (Sierra On-Line, $49.95) can be kind of like . . . well, like a journey through Central Park. Unfortunately, there's only one, rather difficult way to thread your path through the minefields. Use your Manhunter Assignment Device (MAD) to trace the exact route taken by the people you're tracking. (Don't get frustrated. It's awkward translating an overhead view to a side view, and it will probably take you a few runs to get it right.)

Be cautious. The game is ultragrumpy about exactly where you put the cursor, so this once I'll give an out-and-out instruction: For the first screen, it goes on the right-hand border roughly between the lamp post and the edge of the path.

• Talk about grumpy, the owner of the web covering the cave in *King's Quest III: To Heir Is Human* (Sierra On-Line, $49.95) won't abide any land-based assaults on his property. This puzzle is for the birds.

• Your driver education instructor always said "Accelerate out of curves," right? Well, that may be why you're tumbling from the polygon-fill track in *Stunt Track Racer* (Medallist International, $39.95). Drop your speed until you're entirely out of the curve. And don't try to steer all the way through it; you could dangerously oversteer. Let the track do some of the work. When you leave a curve, aim for the high side of the track. It'll nudge you straight again.

• You'll probably need a little souvenir from the Temple of the Dragon to fin- ►

play have been called. SEL tells the split end to throw a lead block for the fullback. HB8 sends the halfback around right end as a decoy. FLO instructs the flanker to run an out pattern and TEC tells the tight end to run a corner route. Believe it or not, you can add much more detail to this play and defensive plays can be equally involved.

Don't be overwhelmed; you'll get plenty of help. The thick but comprehensive rule book is full of examples. To test new plays against different defenses, dot commands let you set up scrimmage situations. Matchup mode assists you in deciding the relative strengths of your team in comparison to an opponent, while the game-plan file gives the computer opponent instructions on playing offense and defense. Unlike in other games, here the computer coach isn't limited to the basic plays that come with the program.

For all its realism and authenticity, Professional Football Simulation is great fun to play. This package hasn't been more than arm's length from my computer since it arrived. If you're a football fan, buy it! *($34.95, MicroSearch Inc., 9896 S.W. Freeway, Houston, TX 77074, 713/988-2818. No special requirements.)*

MAGIC JOHNSON'S BASKETBALL

By Bill Catchings and Mark L. Van Name

END-TO-END, non-stop, two-on-two, fast-break basketball is the game plan of Magic Johnson's Basketball. From the rap credits to the final buzzer, it's you against the computer or a friend, in a battle of sweat, not wits.

You control one player at a time with the joystick. A half-court display scrolls with the ball handler as he moves up and down the court. You do almost everything—switching active players, shooting, passing, blocking, stealing, even punching—by moving the joystick while holding down its button. Yes, you can punch. This is street ball, even though it's in a nice gym with fans that never stop cheering. Punch too many times, and a cloud of dust covers the ensuing fight.

You can pass, but if you want to win, your best bet is to run down the court and slam the ball home. Your only other real play is to shoot the ball when your teammate is under the rim; he'll convert the alley-oop.



Gatorade not included.

If you win the game (a single 90-second period), your score combines your victory margin (points × 100), blocks (× 200), steals (× 200), dunks (× 50), and alley-oops (× 50). Score over 1000 and you get to play another game with different teams.

While the graphics are very good and the sound is decent, a few flaws spoiled the game for us. We could live with the limited simple strategies and defensive options (stealing the in-bounds pass is best); after all, this is fast-break ball. The constant disk accesses, however, were annoying. Even more frustrating were the bugs. Sometimes the ball disappeared, and neither team could find it. Once the referee's head got stuck in the back court. The guru even meditated during the demo.

Magic Johnson's Basketball ►

ish *Targhan* (Gainstar, $39.95). It'll help you fight the Evil One at the end.

• For those of you having trouble getting into the Destiny Stone—the last dungeon in *Bard's Tale II: The Destiny Knight* (Electronic Arts, $59.95): You're in the right place (the city of Colosse), but need to find two words. I suspect you've forgotten what the strange mage said the first time you stumbled across the stone. The clues are in the Tombs—a pretty explicit one on the second level—and you can't split the rock until you've finished the Grey Crypt. One of the words is probably used by courteous gamers every day in real-life (life in which your Amiga is turned off).

• A couple of you have reached the bottom of *Dungeon Master* (FTL, $39.95), found the firestaff and power gem, and are wondering if that's all there is. I'm not clear on exactly where you are, but here are a couple of general hints for the endgame. Have you killed the dragon? (Rise to the occasion when things promise to get too hot.) Done anything with the gem? (Cast about yourself for a solution.)

• Dying like a dog is easy at the beginning of *Faery Tale Adventure* (MicroIllusions, $49.95), when jade skulls are in short supply. Surprisingly enough, a great place to fight is the cemetery off to the southeast. You can take care of the skeleton crew from inside the fence, and they can't come after you. . . usually.

• From Alex Fogle of Fayetteville, NC: Although too wide for jumping, the big empty space on Level Two of *Heroes of the Lance* (Strategic Simulations Inc., $39.95) can be crossed, but only by one character. It would have to be magic, wouldn't it?

• Replenish your lasers for the last two fights in *Menace* (Psygnosis, $29.95), then use a force shield for the last battle. Stay away from the "outsiders." They'll drain your shields when they touch the Guys on the Other Side.

• You just knew that Help key was ►

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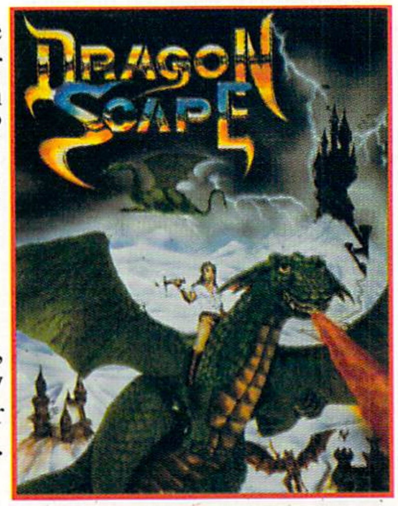
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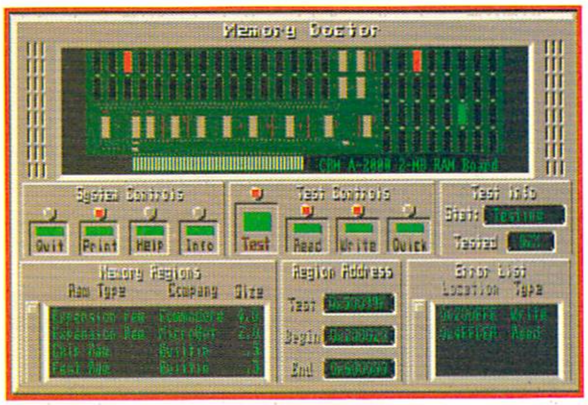
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is an arcade game, not a sports simulation game. You won't find any team management options. If you can live with that and with the game's bugs, you'll have a slam-dunkin' good time. *($49.99, Melbourne House, distributed by Virgin Mastertronic, 18001 Cowan, Irvine, CA, 92714, 714/833-8710. One megabyte and joystick required.)*

AFTER BURNER

By Rob Lawrence

UNREAL IS THE word that best describes the incredible arcade version of After Burner. Unfortunately, during the port to the Amiga, the unreal became unrealistic. Sega should have spent a little more time working on this version.

Don't expect a detailed simulation. The computer handles the F-14 Thunder Cat's course and speed; you need only maneuver around the enemy and shoot. Wave after wave of enemy fighters attack you from the rear as well as head-on. You won't survive long without quick reflexes, an even temperament, and the supplied five extra lives. In the upper stages, watch out for powerful adversaries such as kamikaze pilots and the unbeatable flying fortress. Loading intervals between the stages are about twelve seconds, so you won't have much time to relax your trigger finger. Accompanied by progressively-changing music, the game's graphics are first rate with dazzling detail and color and fast, full-screen animation.



Wanted: sharp shooters and fancy fliers.

While pretty, the game has its share of drawbacks. The most noticeable are the virtually useless brochure-sized manual and the lack of sound effects. The instrumentation provided isn't of much use, either. It consists of an artificial horizon (real helpful), ammunition indicators, and a mach meter (of course you can't accelerate or decelerate). For weapons you have guided missiles and a Vulcan 20mm "rapid fire" machine gun. The gun fires only one shot each time you hit the button, so don't expect to send a barrage of bullets at your enemies. As in other Sega products, the high scores are not saved.

I was not impressed with the Amiga version of After Burner and would not recommend it, unless you are amassing a comprehensive collection of arcade titles. *($49.95, Sega, distributed by Mindscape, 3444 Dundee Rd., Northbrook, IL 60062, 312/480-7667, 800/221-9884. No special requirements.)*

JOAN OF ARC: SIEGE & THE SWORD

By Peter Olafson

THE BEST THING about Joan of Arc: Siege & the Sword, the latest role-playing/arcade game of uniting medieval kingdoms, is the horde of choices it offers aspiring kings. Espionage, dirty tricks, taxation, negotiations, provincial loyalty, and about two dozen courtiers (each with personal gifts) all play a role. That variety instantly sets the game apart from predecessors that focused more on combat or ►

there for something. Lynn Lowry of Salinas, CA tells me that pressing it will keep you level while you cut your speed after a stall in *Falcon* (Spectrum Holobyte, $49.95)—something especially likely to happen while flying upside-down at the Lt. Col. level and above. (If I press the Delete key, do I find out why you're flying upside-down?)

If landing means strewing your plane all over the runway, you can still finish your flight and get all the nice medals by hitting the Esc key and then selecting "End mission." (Thanks to Elizabeth Velez of Salinas, CA.)

• A final hint about future hints: Thanks for the help, but keep it subtle. Many of the hints I receive are closer to cheats, such as the two above for Falcon. The idea here, in the interest of accurate high-score tables everywhere, is to suggest ways to finish games legitimately (like how to actually land or unstall an F-16) without using back doors and loopholes. Give your fellow readers a push; don't lead them by the hand. Above all, watch your step in the park. □

COMPANIES MENTIONED:

Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171.

FTL Games, 6160 Lusk Blvd., C-206, San Diego, CA 92121, 619/453-5711.

Gainstar, distributed by DigiTek, 8910 N. Dale, Mabry, Suite 37, Tampa, FL 33614, 813/933-8023.

Medalist International, 180 Lakefront Dr., Hunt Valley, MD 21030, 301/771-1151.

MicroIllusions, 17408 Chatsworth St., Granada Hills, CA 91344, 818/360-3715, 800/522-2041.

Psygnosis, Port of Liverpool Bldg., First Floor, Liverpool L3 1BY, United Kingdom, 44 51 236 8818.

Sierra On-Line, PO Box 485, Coarsegold, CA 93614, 209/683-4468.

Spectrum Holobyte, 2061 Challenger Dr., Alameda, CA 94501, 415/522-3584.

Strategic Similations Inc., distributed by Electronic Arts.

splashy pictures.

In France of 1428, King Charles VII must balance these forces while fighting off the legions of Henry V of England and two rebellious French dukes, initially with only a small army led by Joan A., a peasant girl who hears the voices of saints.

What a shame that varied tone doesn't endure.

The squeamish be warned: The people you fight occasionally lose arms and heads accompanied by realistic pumping blood. Army combat, however, is rather like pitting insect swarms of varying densities against one another: Not very revealing and not much fun. The straight arcade sequences look fine, but are either too simple (taking the bridge), drawn-out (one-on-one knight fighting), or initially unpredictable (the wall scaling game). The fourth, defending your own walls, is just right.

While the game offers many choices, it doesn't have a great deal of accompanying depth. You don't sense a larger, hidden world of cause and effect. For instance, the king's court has no life of its own; the courtiers have flat computer personalities invoked only on Charles' initiative.

Logistically, Joan could have been better thought out. The computer goes ahead with your turn even if you select an action you can't perform. It attacks its two disks or redraws the screen for even the simplest of adjustments; while the game supports two drives, it apparently doesn't warm to extra memory. The digitized medieval score is nice at first, but it's played to death and can't be turned off.

I'd swallow a lot of these complaints for the pleasure of playing a computer game featuring a heroine (a far too rare commodity), but this isn't it. The game should be called "Charles VII." Once Orleans and Reims are retaken and Charles is crowned, you become Charles and Joan becomes one of a handful of generals. Eventually, she winds up being imprisoned and executed, which seems rather to defy the logic of the game. (You can't even ransom her, as you can other members of your court.)

What's the point of replaying history if it has to happen the way it happened in real life? You might as well just read a book. *($49.95, Broderbund, 17 Paul Dr., San Rafael, CA 94903, 415/492-3200, 800/527-6263. No special requirements.)*

SIDESHOW

By Bill Catchings and Mark L. Van Name

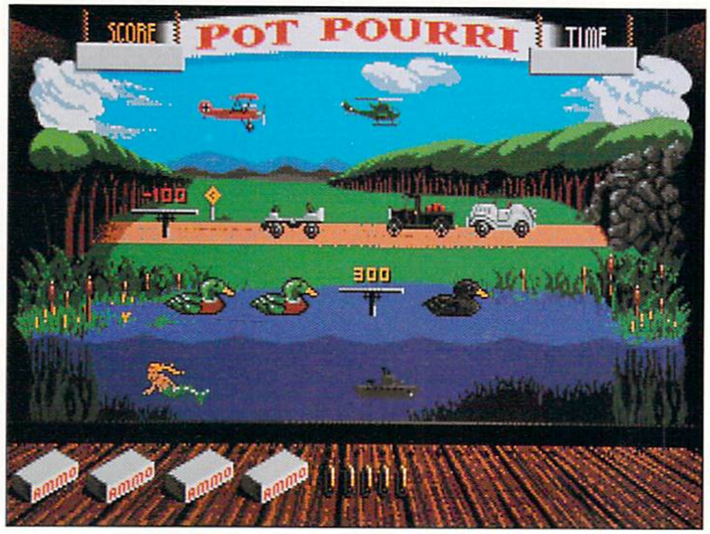
STEP RIGHT UP, ladies and gentlemen, to Actionware's SideShow. The game's excellent graphics, animation, and sound re-create every detail (except for the smell) of a real carnival. You even get a bag of caramel popcorn.

You start with 25 tokens; it takes from 5 to 50 of them to get into SideShow's booths. You beat a booth when you win more tokens than it cost ►

you to enter. Beat a booth three times, and you can't play there again.

All the booths offer a variation of target shooting, even the "Test Your Strength" contest. While some are traditional shooting galleries, the knife-throwing, dunking, and floating-balls booths offer a new twist. Perfecting your novelty of shooting the concession vendor wears off—and, at five tokens, it's expensive! Your score is based on how many tokens you have left. Unless you starve or beat all the booths, you'll end up spending all or most of your tokens.

Just like a real carnival, SideShow can get on your



They're sitting ducks—fire away!

marksmanship with the mouse is tough, so Actionware offers an alternative: a phaser gun ($49.95). The gun doesn't make SideShow much easier, but it's a lot more fun to shoot with than the mouse.

All the shooting makes you hungry, so you have to visit the concession stand periodically or hunger will end your game. As usual, the popcorn, hot dogs, cotton candy, and soda are overpriced. You'll quickly get sick of the food. Having to eat after every three or four booth sessions is just too much trouble. Even the

nerves. Some of its games are almost impossible to win and security is tight. You must enter codes from a copy-protection wheel several times.

Despite these deficiencies, SideShow brings much of the fun of a carnival to your Amiga. Kids particularly like to watch it. *($44.95, Actionware Corporation, 38 W. 255 Deerpath Rd., Batavia, IL 60510, 312/879-8998, 800/447-4862. No special requirements.)* ■

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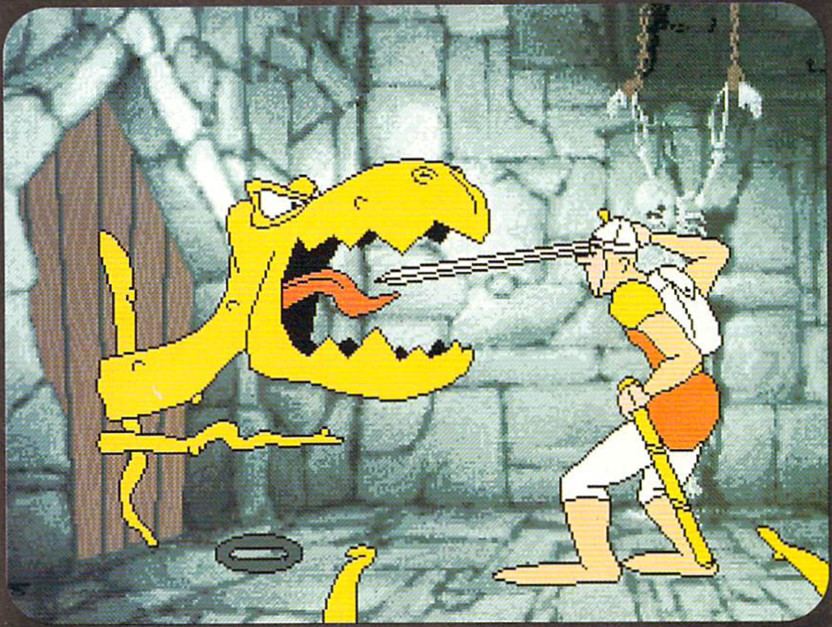
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from p. 19
Multiply this by six bits per pixel and then by three scans for color, and you have almost 2.5 megs of data!

PICS TO BITS

To prepare for scanning, place your source material under the scanner and position it by looking through the acrylic windows (a calibrated scale in the the bottom window assists you). I had no trouble positioning large images, but found it difficult to line up small objects.

You control the rest of the process from the software's two menu-driven screens, first making a lo-res black-and-white scan of the entire source area. An on-screen Progress Meter tracks this and all other ScanLab procedures. Both the unit and source remain stationary while the internal scan head sweeps the area; in less than a minute, a high-contrast representation of your image appears on the Preview screen.

Using this "rough draft," you can zero in on the area you want included in a fine scan. Simply draw, size, and position a rectangle over the Preview image with the mouse, or enter boundary values via the keyboard. The Preview screen shows the dimensions of the area to be scanned in inches and pixels, as well as memory requirements for the various scans at your chosen resolution. These values are continuously updated as adjustments are made, and are displayed in red if required memory exceeds available RAM.

On the Fine screen, you can choose from scanning resolutions of 50, 100, and 200 dpi, and the four types of scans (single-bit black and white, six-bit gray scale, and three- and 18-bit color). You can also set a threshold level for black-and-white or three-bit scans. Scanning time depends on size, resolution, and type: The largest possible monochrome scan at 50 dpi takes about 45 seconds, while an 18-bit color scan of the same area at 200 dpi takes over nine minutes.

SEEING THERE

ScanLab supports all Amiga display formats: Screen width can be 320, 368, 640, or 736 pixels, and screen height can be 200, 240, 400, or 480 in NTSC format, and 256, 296, 512, or 592 lines in PAL. ScanLab processes the data to match display limitations. You can adjust horizontal and vertical resolutions individually to any value with the software's digital-



Sticky stuff: 200 dpi in 16 colors.

reduction capabilities, and thus fit the aspect ratio to the display. Large bit maps, scanned at 200 dpi, can be shrunk to screen size.

Any color mode, including HAM, can display the 18-bit scans. This 18-bit data contains much more color information than the Amiga monitor can show, however, so ScanLab lets you adjust image brightness, contrast, color, and gamma over a wide range. It also lets you trade screen resolution against the perceived number of colors by dithering the image (five dither patterns are provided). If a scanned image is too large to fit on screen, you can scroll through it using the cursor keys.

ScanLab can also process images into its own A-HAM, ARZ0, and ARZ1 display formats. A dynamic HAM mode, A-HAM allows greater color flexibility than standard HAM by redefining the palette for every scan line. ARZ0 and ARZ1 also redefine the palette for every scan line, thus permitting 4096 colors in hi-res, which is normally limited to 16 colors. Because these modes are processor intensive, you cannot scroll the image when using them. Processing time again depends on a number of factors—image size, dithering option, and display format. As a worst case, a full-size scan at 200 dpi in ARZ0 mode took over 12 minutes.

Changes to the display settings are applied to the scan data in memory. Here, processing can take a few seconds to several minutes.

You can save the raw scan data, that portion of the processed data showing on screen, or the entire processed file as a super bitmap. ScanLab can load and process previously scanned data in any format (including dimensions up to 1280×800 pixels) or Amiga IFF files. Although you can use the ScanLab software as a stand-alone image-processing program, the JX-100 must be connected for it to run.

You will need at least one megabyte to run the system, and using the maximum hardware and software capabilities requires over four megs of RAM. Although you can work from floppy disks, a hard drive or other mass-storage unit is needed to save the RGB data from large scans. ScanLab simplifies hard-drive installation with a utility that installs the program in any directory you choose.

For producing color images of static material for page-layout applications or screen display, ScanLab 100 is quality package well worth considering.

ScanLab 100
Sharp Electronics
Sharp Plaza
Mahwah, NJ 07430-2135
201/529-8200
800/BE-SHARP
$995
One megabyte required.

PERFORMANCE

The Amiga becomes a stagehand

By Steve Quinzi

FROM NIGHTCLUB BANDS to major acts, musicians are using sequencers on stage more and more frequently; and with MIDI setups growing increasingly complex, there is a need for a product that configures them automatically. Such a product would be even more valuable if it could also play sequences and help arrange the order of your band's material.

This is the concept behind Performance from Pregnant Badger Music. Essentially a database, Performance defines your MIDI setup in a graphic editor. Using this configuration file as a basis, it bundles standard MIDI sequences with System Exclusive (SysEx) dumps, patch changes, controller changes, and so on, and binds this information to song titles that can be arranged as sets.

The program comes on one non-copy-

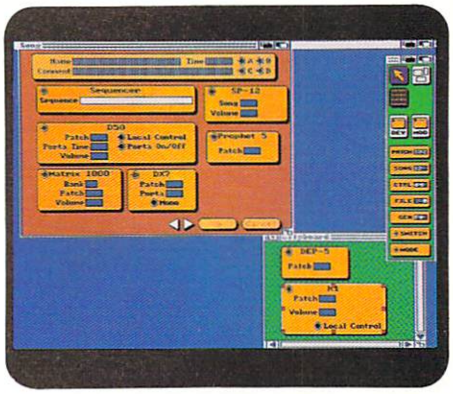
protected disk and requires a MIDI interface to communicate with external MIDI gear. The package includes four utilities that run from the CLI: Receive System Exclusive (a SysEx recorder), Display MIDI File, MIDI Monitor, and Hex Transmit (which transmits MIDI messages entered in Hex).

Blocked In

The program is divided into four "pages": the Big and Small Selectors, and the File and Set Editors. Music database construction begins on the File Editor page where your MIDI setup is defined. This page consists of three windows: the Song window, the Clipboard, and the Toolbox. The Song window holds Device blocks, which represent the MIDI devices in your setup, and Module blocks, representing program modules. Blocks appear as boxes, which you can size and move within the Song window using either the mouse or menu commands. In the Templates file are sample Device blocks you can modify to suit your needs. You can also design blocks using the Toolbox's Device tool. If you need more blocks than can be displayed at once, just open other Song window pages. (The Clipboard is useful for moving objects between pages but cannot be used for entering blocks into a database.) Clicking on the new block opens a window into which you can enter its parameters, including name, MIDI channel, and whether or not it sends start and stop commands. These parameters take effect whenever you use the device. Any patch files you want sent to this device, either in Sound Quest's Form Bank format or in raw MIDI System Exclusive format, can be assigned here as well. A File field lets you set the path/file name, while Prefix and Suffix fields allow you to send special SysEx messages.

The Outfield

Once you have created a block, you will want to add one or more fields to determine how the different types of data will be controlled. (Fields can accommodate different values for each song.) Just choose a field tool from the Toolbox, place the new field, and then click on it to open a parameter window. For a Patch field you can define the internal patch structure of the instrument you are sending changes to (the Preset button brings up a list of formats for several popular synthesizers). The Song field, designed to change song numbers on a Yamaha RX11 drum machine, also works with my Emu SP12. The Controller and Switch fields can be labeled according to the controller number you are sending (7 for MIDI volume, for example). You can specify whether the controller is a one- or two-byte continuous, such as modulation, or a switch (on or off), such as sustain pedal. The data range can be signed (−64 to +63) for controllers with a center point such as balance and panning, or unsigned (0-127). The File field is the same as its counterpart in the Device block, except that from here you can send different patch files for each song. The Generic field sends SysEx messages to control functions not accessible by controllers. The Mode field switches between mono and poly modes, omni on and off, and local on and off.



Paging the File Editor.

The sole Module block—the Sequencer—is similar to the Device Blocks. It is a play-only module that supports only single-track MIDI sequences. Clicking its Data button opens a parameter window with fields for MIDI routing (these default to the serial port as no other source or destination is supported), and buttons to switch between internal and external sync, send MIDI clocks, and offset syncronization by one clock.

Rep Prep

With your MIDI configuration set, switch to either the Big or Small Selectors to as- ►

semble your song list. The Small Selector displays about 100 titles in interlaced mode (less in non-interlaced). The Big Selector uses a half-inch font that you can read from across a stage. Although it displays only five titles at a time, it provides a menu of all songs in the database and lets you select from them.

You place a song in a selector by choosing Add from the Song menu. In the window that opens, you plug values into the fields set previously. Then into the Title block, type the song title, its length, and the category (A, B, C, or D) into which it will be placed (this is used later for set randomization). In the Sequencer block you specify the path/file name of the corresponding sequence and any Tempo Shift (a feature that preserves the MIDI file tempo map but shifts it globally by a given number of beats per minute). Finally, in the Device blocks, enter your patch, controller, and file information, switch each module either off (to prevent patch or controller data from being sent) or on, and then press the Return key to see the song title in the Selector. Keep in mind that patch or controller changes in the MIDI file sequence overide what is specified in the data fields. Also, note on and off information in a sequence passes to whatever instrument will receive it, regardless of whether its Device block is switched off or even if you have not assigned a block to that instrument.

Once your repertoire is in the Selector, you can move from song to song via mouse or keyboard commands. Choosing Auto Update from the MIDI menu tells the program to send MIDI data whenever a new song is selected (otherwise Performance waits for you to press Return before sending data). An indicator at the bottom left of the screen reads OK when MIDI is enabled, Off when disabled, Wait if engaged in a transfer, and Send when it is waiting for you to give it information. You can play a selected song by pressing the Tab key; pressing Tab again returns you to the beginning of the song. There is no way to stop and continue, and you cannot start from anywhere but the beginning of a song. The sequencer does respond to MIDI Song Pointer when in external sync, however, so you have these capabilities when driving Performance from an external timing source (drum machine or sequencer) that sends Song Pointer.

The Set Editor has five windows: a Set window on the left, and one for each of the four categories (grades) of songs on the right. You can build your set by clicking and dragging titles from Category to Set windows, and arrange song order using arrow gadgets. The program can pick a set for you, if you prefer, either by priority (starting with the highest grade songs and working down), or by weight (wherein you determine an approximate song grade distribution). A color bar graph shows the relative breakdown of the set by grade, and a readout tells you length of the set in time.

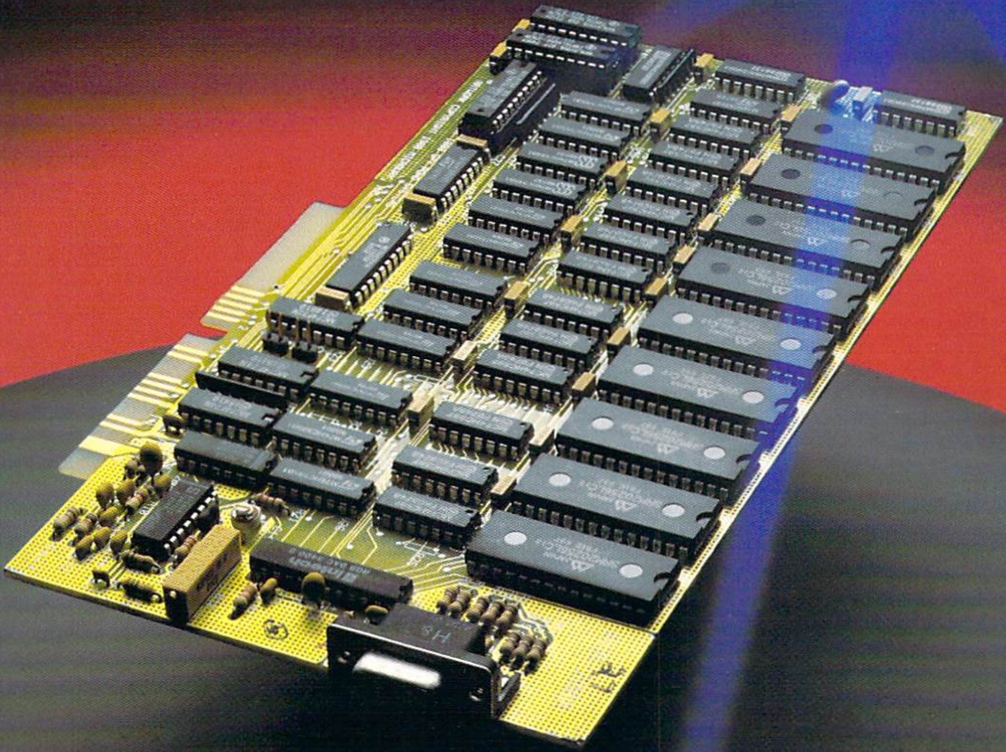
FINAL SET

Performance is a clever package that does everything it promises to. I think too much energy was devoted to graphics, however, and not enough to performance considerations. The sequencer is very limiting, for example, and I would like some zoning and mapping features to optimize the MIDI setups of live performers.

Although you can find many of the program's abilities on patch librarians and sequencers, Performance offers a different approach. It consolidates a multitude of functions into a single keystroke, and does so in a logical way. Thanks to a clear, well-written manual the program is easy to learn and a good vehicle for musicians of all levels to find out more about their MIDI setups. It falls short of making me want to bring my Amiga to live gigs, but is very useful for system-configuration and repertoire management.

Performance
Pregnant Badger Music
10010 Biscanewoods Way
Sacramento, CA 95827
916/361-8217
$179.95
One megabyte required. ►

AGA 2000
The flickerFixer™



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flickerFixer upgrades the Amiga 2000 with a flicker free 4096 color palette, has an overscan mode that features a screen size of 704 x 470 pixels and drives most of the popular PC Multiscan and VGA monitors, including the NEC Multisync and Mitsubishi XC1429C.

Accolades include: ***Best of 1988 Award,*** Commodore Magazine (12/88); ***#1 Reader's Choice Award***, AMIGAWORLD (12/88); ***"The display is fantastic . . . It is the best display we have ever seen on any computer system."*** Amiga GURU (5/88)

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FrameGrabber 256

Datel Video Digitizer

B&W and sometimes color

By Morton A. Kevelson

THE LATEST WAVE of video digitizers has hit the market, leaving two new models at our feet: FrameGrabber 256 from Progressive Peripherals and the Datel Video Digitizer from Datel Electronics. Both can capture a moving image in real time (that is, the time it takes the video display to recreate it) and deliver the result in monochrome shades. In addition, FrameGrabber 256 can capture motionless images in color. While both units perform well, each is suited to different applications and budgets.

FrameGrabber 256

FrameGrabber 256 from Progressive Peripherals is housed in a black metal case seven inches wide, ten inches deep, and two inches high. The front panel is fitted with four video-input jacks and Intensity and Black-Level controls, while the back panel contains a pair of nine-pin D connectors, a parallel port, and a power-supply jack (an external box provides regulated DC voltage). FrameGrabber 256 connects between the Amiga's RGBA video port and the monitor; in fact, because FrameGrabber 256 intercepts the Amiga's video signal, you must power up the digitizer before you see anything on screen. Data is transferred between FrameGrabber 256 and the Amiga via the parallel port, which may mean a conflict in hooking up your printer.

Functionally, FrameGrabber 256 is very similar to Progressive Peripherals' original video digitizer, called simply FrameGrabber. The two differ, however, in one key respect. While its predecessor can digitize color images in real time, FrameGrabber 256 cannot. Instead, the newer unit translates images in up to 256 gray levels. All those gray levels may not seem like much compared with the Amiga's palette of 4096 colors, but of those colors only 16 are grays, and in fact the Amiga is unable to display a 256-level gray-scale image without FrameGrabber 256. Lack of real-time color digitization capability does not mean that FrameGrabber 256 is confined to the world of black and white, though; using the color filters supplied with the package, you can combine three digitizations to produce high-quality color images.

Sittin' In

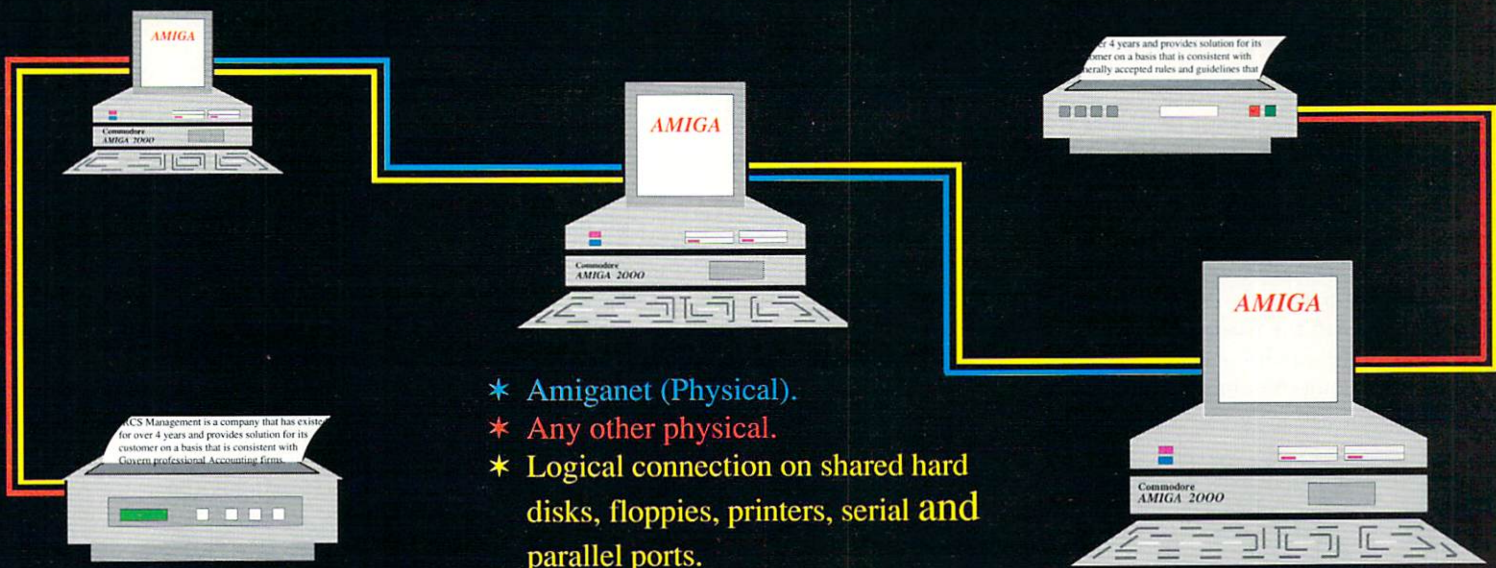
FrameGrabber 256's four video inputs work in two ways. In the default configuration the inputs accept independent video signals, each of which can be either monochrome or composite color. In this mode you can select the active input signal via software, or determine timings for each input and set the software to cycle through any or all of them in any sequence. The display can be partitioned into four or 16 parts, in which case in- ►

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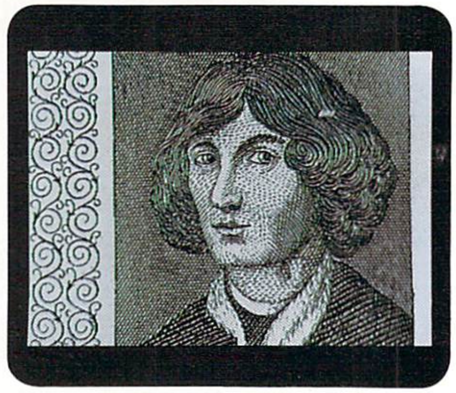
Copernicus enhanced with FrameGrabber's software sharpness control.

coming images can fill the parts in sequence. Two other options provide a near infinite zoom range: that of designating any portion of the screen to accept the entire image, and conversely, for extracting a portion of the image and placing it anywhere on the screen. You can save any part of the image as a brush, and with the freehand brush function, store any number of arbitrary shapes as a composite brush.

The alternate configuration sets the first three inputs to accept color video as separated red, green, and blue signals and the fourth to accept the composite synchronization signals. Thus, in tandem with an RGB color video camera, you can create a color image without color filters (although not in real time) by selecting each RGB input via the software and digitizing your image three times. Because FrameGrabber 256 cannot separate a composite color signal into its RGB components, you must use the color filters to produce color images with a composite color video camera. FrameGrabber 256 treats composite color video as a monochrome signal.

Of Pixels and Processes

The real power of FrameGrabber 256 lies in its ability to capture an image with eight data-bits per pixel and to process it (although harnessing this power requires that you add at least 180K of RAM to the FrameGrabber itself). Color images captured this way will have a total of 24 data-bits per pixel, which translates to 16,777,216 colors. FrameGrabber 256



Digitized with Datel: No touch up.

supports scores of image-capture formats and every conceivable Amiga display format, but it can capture images in only four formats: 320 × 200, 320 × 400, 384 × 240, and 384 × 480 pixels (the latter two represent full overscan).

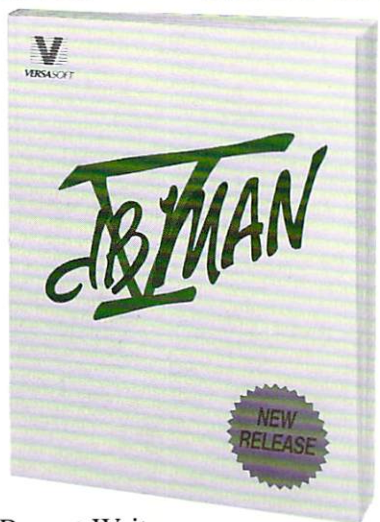
Although digitization takes just $^1/_{30}$ of a second, the time required to process the image in the FrameGrabber buffer, transfer it to the Amiga, and display it is anywhere from five to 25 seconds. You can process an image in several ways, ►

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and in this function, FrameGrabber 256 really shines. If you are working with stationary images under poor lighting conditions, you can have the program oversample the image up to 50 times and average the results. This can go a long way toward minimizing the effects of noise.

Captured images can also be compared with each other or against a master image, and you can display the differences to highlight necessary changes. Having eight bits per pixel (24 for color) allows you to adjust the brightness, contrast, and color over a wide range. Details in the original image that would be obscured in a straightforward digitization can be made readily visible. Most of FrameGrabber 256's software enhancement options require the full eight-bit data (24-bit data for color) to work.

You can save FrameGrabber 256 images in a variety of ways including the 24-bit IFF image format and the older 21-bit Digi-View (NewTek) format. FrameGrabber 256 can also read and write Anim files, and the software lets you automatically digitize images and save them to an Anim file. The system is designed for stop-motion photography, as image-processing times are on the order of several seconds.

FrameGrabber 256's file requester is one of the best I have seen. The file listing includes the date, time, and size for each file. I like the fact that you can sort the list alphanumerically as well as by date and size, but wish that the latest file was added to the top of the list instead of to the bottom.

FrameGrabber 256 requires a lot of memory for full functioning. One meg is required and two are recommended. The large size of the image files (an eight-bit gray-scale image creates a 24-bit IFF file with over 100K of data; a 24-bit color image file is over 300K long) makes a hard drive more than a luxury for serious work. The software provides extensive pull-down menus and detailed requesters for the more complex operations, and keystroke substitutes are available for many commands. Although it is easy to use, the lack of proper documentation makes the software difficult to learn. At first glance the manual appears complete and well organized: Menu options are summarized up front and technical details are provided in appendices. Unfortunately, though, much information is missing. The manual does not indicate which image-processing functions apply to the buffered data and which work with the displayed image. Only through experimentation did I find that the Level controls and Histogram work with eight-bit buffer data while the Color Bias controls manipulate the screen image. The index is so extensive that every mention of the word in question is listed; I often thumbed through ten or more references to find the information I needed.

Datel Video Digitizer

In contrast to the extensive features of FrameGrabber 256, the Datel Video Digitizer is a no-frills piece of equipment that's easy on the wallet. Like FrameGrabber 256, the Datel unit is a monochrome digitizer, but instead of producing images with 256 gray scales, it digitizes in 16 shades. The Datel digitizer ►

AMIGA PROFILE

Perfect Match

SAY THE WORD wedding and most people will think of white lace, black tuxes, and flying rice. But say the word to **Tony Impoco** at Video Data Services, and he'll think of an Amiga.

With some video equipment and an Amiga, Impoco regularly transforms weddings into works of art for the newlyweds. And this means bucks for Impoco, who is part of a 230-strong franchise organization aimed at affordable video production.

At his franchise in Springfield, Massachusetts, Impoco uses an Amiga 2000 to spice up otherwise ordinary videos. He may freeze in shots of romantic poses into the Amiga, remove the background (how did Aunt Wilma get into this picture anyway?), and then superimpose the shots over a different, more romantic background. He might also shrink the shots and hang them so they look like a framed collage. And if that's not enough, when the couple kiss, he might just make a heart pop up between them. Almost anything is possible with the Amiga.

For Impoco, the wilder the request the better. While he's still waiting for a client to ask him to transform their wedding into a rock video, he's busy turning wedding day poses into iron-ons for the bride and groom to put on T-shirts!

Although Impoco uses a broad array of software products, he relies mainly on Photon Paint II, DeluxePaint II, Digi-Paint, and Deluxe PhotoLab. For animations he uses ANIMagic, The Director, Lights! Camera! Action!, Video Efects 3D, and Animation:Apprentice.

Impoco's operation is one of more than 100 Video Data Services franchises that have opted to use the Amiga. In fact, **Stuart Dizak**, president and founder of Video Data Services, predicts that eventually all franchises will use the Amiga because it increases profits.

Non-Amiga franchisees pay $15,950 to become trained and outfitted with the latest video equipment, but they still have to send specialized work to outside service bureaus. Sending work elsewhere either raises prices or cuts profits. For an extra $3000, however, franchisees can be trained on and equipped with Amigas; profits increase because all work can be done on site, cheaply. "Another system would cost over $100,000, but with the Amiga I can spend less than $3000," says Dizak.

Tony Impoco believes the Amiga also brings a larger client base: "If I worked on another system, like a Mac, I'd spend three times as much time and still not have the animation capabilities. With the Amiga I can give my clients quick, inexpensive, and unlimited service."

In the rapidly developing market of video production, Video Data Services has found the cutting edge—the Amiga. By dazzling clients with its animation capabilities and enhancing profits for the owners, the Amiga has brought success to many of the franchises. And who knows, maybe someday you'll see an Impoco wedding video on MTV!

—*Carla Barker*

is housed in a plastic cartridge. Unregulated power is supplied by a battery-eliminator-style plug-in wall module, and a five-volt regulator on the main circuit board completes the power circuit. A red LED next to the parallel-port cable indicates when the unit is powered up, but unfortunately, this LED will most likely face away from you as it is alongside the connecting cable.

The unit connects to the Amiga's parallel port via a flat ribbon cable. The lack of shielding on both the cable and the case is a cause of potential radio-frequency interference with some video sources. A standard RCA jack on the other side of the package accepts composite video. You can adjust the miniature trimmer-type potentiometers with a small screwdriver to set brightness, contrast, and synchronization levels for the incoming video signal. The manual cautions against unnecessary fiddling with the synchronization level as the adjustment is rather critical. I found no need to adjust any of the controls as the unit worked well with my video sources.

The Datel Video Digitizer was originally designed to function with the European PAL standard video signal, and as such, it grabs non-interlaced images 256 pixels wide and 256 pixels high. The resulting image is vertically overscanned on the Amiga's display. Because NTSC screens do not have as many scan lines as PAL screens, several lines show up on the bottom of the image filled with garbage. These extra lines do not present a problem as you can be edit them out with a paint program.

One digitized image completely fills the Video Digitizer's 32K on-board RAM buffer. The digitizer grabs the image in real time ($\frac{1}{60}$ second for a non-interlaced image), transfers it to the Amiga, processes it, and displays the image in about two seconds. With the continuous-grab option, you simply click the left mouse button to hold the image you want. Although the Video Digitizer has a faster grab-and-display cycle than many other Amiga real-time digitizers, it has no provision for creating animation files or image sequences.

The 256-pixel wide image does not fill the entire width of the Amiga's low-resolution display, but the software lets you expand the image to 320 pixels by duplicating every fourth column of pixels in the original image. I like this feature; original images appear horizontally squeezed while the expanded images show no noticeable distortion.

The software also provides a set of basic editing functions, including options for cutting, copying, and pasting portions of an image. The entire image can be inverted, flipped, negated, and shrunk both horizontally and vertically to one fourth the original size, as well. Although you can save images in RAW or IFF formats, only the RAW format can be loaded back in. The simple file requester consists of a single line, and requires that you enter file names manually. You must boot from the distribution disk (or a duplicate) in order to run the software, and although it is not copy protected, there is no provision for transferring the program to a hard drive.

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with a serious price tag. Its extensive image-processing functions and high-performance hardware make it suitable for the video analysis of real-time events. On the other hand, the Datel Video Digitizer provides performance on a budget. Although it lacks the many features and capabilities of FrameGrabber 256, it is not a bad little unit and it certainly does the job.

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Progressive Peripherals & Software
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One megabyte required.

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702/454-7700
$139.95
No special requirements.

Software from Hell

Fallen routines, libraries, and utilities for programmers.

By Bryce Nesbitt

WHY INVEST YOUR time and toil writing common software functions when you can purchase them ready made? A package with a formidable name, Software from Hell boasts a complete set of audio, screen, IFF-graphics, and disk utilities for programmers. Each of the over 70 functions comes complete with source code written for Manx's Aztec C compiler. Using Software from Hell with the Lattice C compiler (Lattice) would require a substantial porting effort, as would using them with the Manx 16-bit integer modes. On the other hand, while the assembler functions are written for Manx, converting to another assember is quick and easy.

The sparse but nearly sufficient documentation, supplied in the familiar AutoDoc format, includes no background or tutorial sections. Linkable versions of all functions are provided on disk, and ideally, you should be able to simply call the functions and link with some extra library modules. Unfortunately, Software from Hell is short of ideal.

Making Noise

Based strictly on digital sound samples, the Amiga's audio device is powerful but somewhat difficult to use. Playing a simple tone with the audio device requires extensive set up, but with Software from Hell, you can play just by opening the audio section, grabbing a channel, and calling PlayNote()—one of the commands provided for creating notes and waveforms. Supply a buffer, and the waveform functions can fill in a triangular, sawtooth, or square waveform. Because most digital sound samples are stored in IFF-compatible 8SVX files, Software from Hell provides an easy-to-call Read8svx( ) playback function. I was disappointed with the awkward interface for freeing the memory of samples, and the ►

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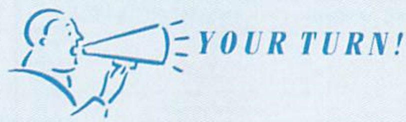
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lack of support for compressed samples.

The audio functions require much more explanation than the manual alone provides, and while the examples on disk capably demonstrate the use of the audio functions, they fail in just about every other way. They are of poor quality, crashing at the slightest provocation. The code is filled with obvious mistakes: The examples allocate memory, but never check the return codes, and extensive error checking is provided for events that will never happen. These examples tarnish what is an otherwise good set of functions.

Picture This

Another set of functions handles the complex job of reading IFF ILBM-format picture files. These functions are nicely designed. Software from Hell tracks memory allocation automatically; You can read any number of tracks from disk, use them, then free the memory with a simple call. The most useful of the graphics functions include ReadBrush(), which reads an ILBM file from disk into memory, ReadScreen(), which reads an entire screen, and Brush2Sprite(), which converts a brush into a sprite. Various other functions purport to allow rendering of brushes, but this section of the source code is marked experimental, and I advise that you do not trust it.



Software from Hell is pretty good. It saves me an incredible amount of time.
—*Wilton D. White*
Troy, NY

Like the audio example, the picture example is of dismal quality. Memory allocation errors are not checked, and ugly coding tricks are used. Visually, this example is fine on a 68000-based machine, but it flickers badly on machines with a 68020 or 68030 processor. Except for rebooting or crashing (which is particularly easy here), there is no way to exit the graphics example.

Futile Spinning

Although Software from Hell's advertising copy claims that the disk functions "Peacefully coexist with Amiga multitasking," in truth the package takes over the operating system with the electronic equivalent of a mugging. A section of highly unstable code finds the task control block of the system disk driver, looks at an undocumented absolute offset, and sets a driver-private flag.

The disk functions are sure to fail under AmigaDOS 2.0. Even under older DOS versions, there are extensive problems. Software from Hell can cause normal AmigaDOS disk writes to end up at the wrong place on the disk—or even on the wrong disk. Few of the disk functions handle error conditions. For example, if you try to read a blank disk using the TrackRead function with the DSKSYNC feature enabled, the calling program will freeze.

Unfortunately, the disk section offers no real benefits. Most calls are simply ►

BEST RETURN ON INVESTMENT

Videotaping Services

In 1987, Virgil Miller was injured while performing his duties as senior deputy sheriff in Bakersfield, California. He was referred to a vocational rehabilitation counselor to help him get started in a new line of work. Miller had been videotaping weddings and school activities for friends as a paying hobby, so his counselor suggested learning video production. The training would have taken at least 14 months—that was too long.

Then they discovered Video Data Services, a videotaping service that, for $13,950, provided its franchisees with all the training, equipment, and marketing assistance needed to start a video photography and tape-transfer business specializing in weddings, product demonstrations, sales demonstrations, legal depositions, conventions, and computer graphics. After researching the company thoroughly, the counselor recommended that the county buy the franchise for Miller as part of his compensation.

Video Data Services offered Miller an opportunity to enter a field with explosive growth. Videotaping and transfer services commonly gross six figures a year and Video Data Services claims that anyone following its procedures full-time should be able to reach that income level within two years. "It's all up to you," says Miller. "If you follow the program, you should be able to do it. This is my second year, and it is already a fantastic one. **I should reach the $100,000 mark by the fourth quarter of 1989.**

"I started this business full-time from day one," says Miller. "I like to tell my law-enforcement friends that I work only half days now that I'm my own boss. They turn green until I explain what I mean—8 a.m. to 8 p.m.." However, long hours are not a requirement, according to Miller. "A lot of affiliates start part-time until they feel secure. The company is great about that. They hold your hand every step of the way, teaching you marketing methods and giving you promotional materials." There are several specialized areas to go into, and Video Data Services teaches you to approach target markets one at a time until you know each one well. For instance, you might start by taping weddings. The company will provide you with tapes to run in a booth at bridal shows. They'll also give you a letter to send to couples whose engagement is announced in the newspaper.

Miller's approach is not as structured. "I never turn down a job, even if I know that I can't do it or don't have the equipment. I'd rather accept the job and then subcontract to someone else. That way the customer keeps coming back to me."

Miller has both consumer and commercial accounts. "I tape everything short of commercial TV: legal depositions, real-estate property, sports, graduations, even a video yearbook. I also do a lot of industrial work, like training tapes. For sales promotions, I'll videotape a company's products for the salesman to show customers on the road."

The graphics capabilities of his Amiga make it easy to put titles and credits on tape. "With the Amiga, I can digitize the image of a business logo into the computer, enhance it, clean it up, and put it right on the videotape. Most businesses are impressed with the product, and their satisfaction gets me more customers. Actually, I usually get three new customers from every job I do, just from word of mouth. It has been easy to turn a very good profit." Other new business comes from the franchisor, through direct-mail marketing, and the yellow pages.

Kern County helped Virgil Miller retrain for a new livelihood. For an investment of $13,950, the county certainly got its money's worth. **Article Reprinted From The June 1989 Issue Of "Home Office Computing."**

SNAPSHOT

Virgil Miller

FRANCHISE: Video Memories—local franchise name of Video Data Services, a national videotaping service

RESIDENCE: Bakersfield, California

INITIAL INVESTMENT: $13,950 in 1987

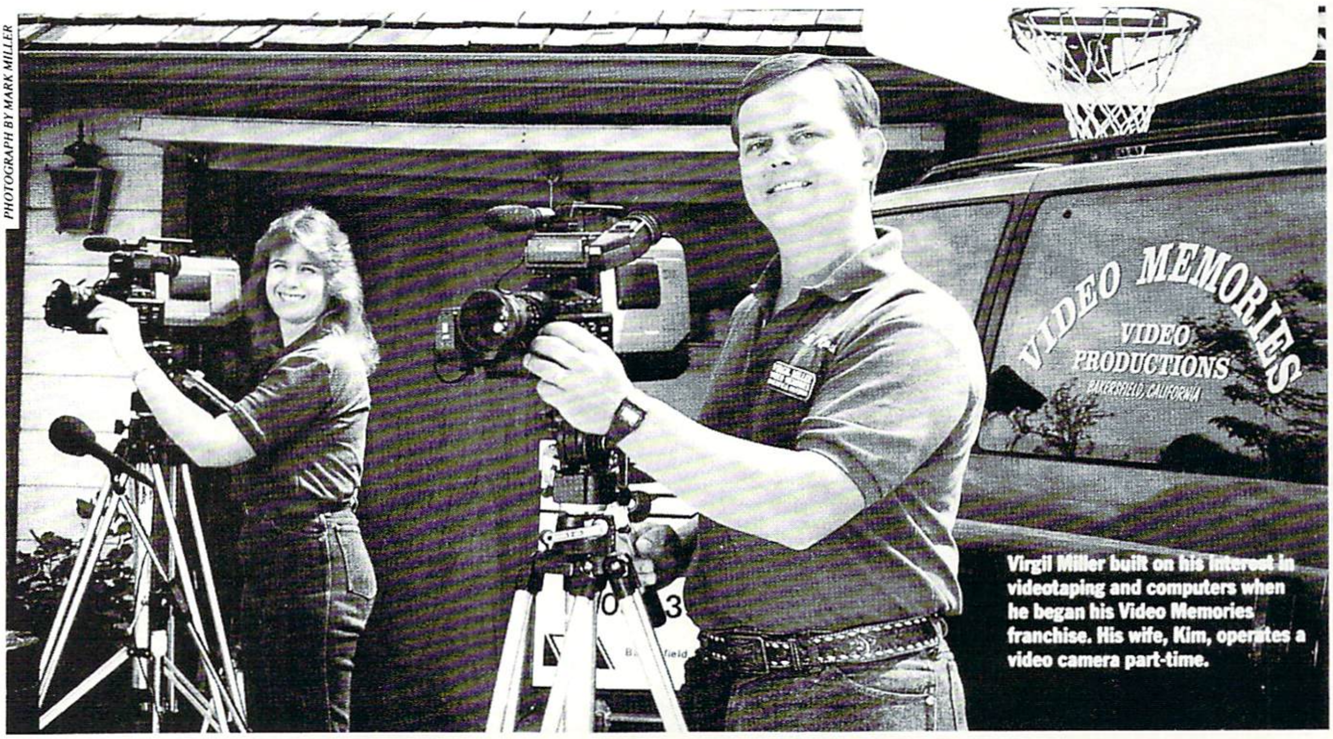
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PHOTOGRAPH BY MARK MILLER

Virgil Miller built on his interest in videotaping and computers when he began his Video Memories franchise. His wife, Kim, operates a video camera part-time.

Circle 207 on Reader Service card.

duplicates of those provided by the operating system. The only truly valuable routine, a function that allows accurate timing on any speed processor, is, like the rest of the disk section, incompatible with multitasking.

Eight miscellaneous utility programs round out the Software from Hell package. Four of these are for manipulating text files. You can use the output of another utility, which searches source code for #include lines, as dependencies in a Make file. The Man program searches AutoDoc files. Finally, the Atags and Stags utilities generate tags files for use with vi-compatible editors. (Vi can search a tags file for a function name, load the proper file, and go directly to the start of the function.) Unfortunately, Software from Hell's tags files are unsorted, and thus are incompatible with some versions of vi.

Caveat Programmer

Software from Hell has far too many problems to get a recommendation from me. Still, it is probably a better alternative to the drudgery of writing than public-domain source-code examples are. . . at least with Software from Hell you have a place to voice your complaints.

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Award Maker Plus

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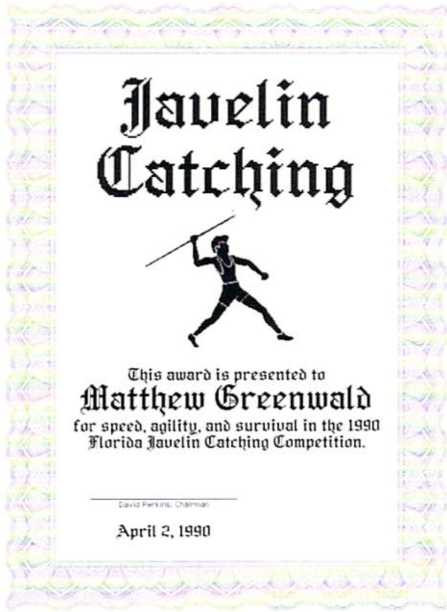
By Randall R. Greenwald

YOUR DAUGHTER'S SOCCER team is nearing the end of its season and you would like to reward their efforts with something special. Içe cream? Too fattening. Trophies? Too expensive. Certificates? Yes!

Award Maker Plus makes producing certificates a snap. With this program, teachers, coaches, employers, and parents can print visible, personalized encouragement and recognition—in the form of awards, coupons, and the like—for those who need and deserve it.

Award Maker's boasts that even novices can produce useful awards within minutes. While such lines arouse the skeptic within me, these words proved surprisingly accurate. The manual is thorough and well written, but the program is so easy to learn that instructions are rarely necessary. Don't look for a pleasing Amiga-style interface, however; Award Maker Plus is a port and it shows.

The package walks you through each step in designing your creation, asking you first to choose an award style. The program disk provides a number of styles which, with variations, provide over 300 choices. Theme award libraries (Sports, Education, and so on), available for $29.95 each, expand your options. The quality of the award designs is generally good, and there are styles suitable for most occasions. ►



Reward modest and extraordinary (ouch!) feats.

Selecting a style will dictate your remaining choices. Some awards have graphic images, locked in place. (With the Apple II, IBM, and Macintosh versions of Award Maker Plus, you can import graphics, but not with the Amiga disk.) You can ocassionally alter the award title (such as "Geography Award", "Employee of the Month", or "Girls' Soccer") and the font it is printed in, and in all cases you can select a font for the text. Don't expect to use your own fonts, though; you are limited to the four types on the program disk, plus another four if you own a library disk. All the fonts provided look good on awards.

All awards accomodate the name or names of the award's recipient(s). A useful feature is the ability to enter a list of up to 50 names and print identical awards, changing the name on each. Thus, you can enter the names of all your soccer players and leave the computer to generate personalized awards for the whole team while you watch *Star Trek* reruns. Save the list, and you can use it another time.

Finally, you are given a selection of styles and colors for borders. The supplemental libraries contain additional border patterns.

While the fonts and borders are represented on screen as you select them, the entire award is not assembled as you go. If you want to see your creation on screen before printing, select the Preview option. Don't expect grandeur, though; the preview images are small, nearly impossible to read, and strictly in black and white, even if you have chosen a color printout.

In Hand

Award Maker Plus uses Preferences printer drivers to print your awards, and does a very good job of it. My nine-pin printer produced very respectable output, and my 300-dpi HP DeskJet turned in even better results. Neither output is suitable for formal occasions, however. Jagged fonts would not cut the mustard for graduation day or properly accompany that Salesperson of the Year bonus check. Nonetheless, the output is quite adequate for bringing encouragement to co-workers or recognizing the achievements of your team.

Award Maker Plus is simple to use, relatively intuitive, and does exactly what its advertisements and manual say it will do. For such small favors, the developer should be commended. Yet if I sound disappointed in this package, I am. Award Maker Plus does not take advantage of the Amiga's capabilities. If you are content with the packaged styles, borders, graphics, and fonts, you will be happy with this product. If you enjoy using "The Computer for the Creative Mind" for more original endeavors, however, be prepared for frustration. How much better it would be if along with the hundreds of pre-designed awards, you were given the ability to personalize a supplied image in your paint program, draw graphics of your own, or digitize a picture of the recipient for import into Award Maker Plus! I find the unwillingness of a developer to make its product fully functional for the Amiga insulting, and I urge Baudville to produce an Award Maker Plus "plus".

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BACKTALK

CANDID RESPONSES TO *AMIGAWORLD* REVIEWS

Baud Bandit (Progressive Peripherals)

Reading the review of Baud Bandit in your January issue (p. 79), it became obvious that Mr. Leemon did not use the program to contact an ANSI BBS. If he had, he would have seen that Baud Bandit does not fully support ANSI. Because the program's only emulation is ANSI, readers should know that it scrambles ANSI graphics screens. Use of IBM fonts and setting of the character mask as was recommended to me has no effect on this scrambling.

—**Steve Burroughs**
Bossier City, LA

I not only tried Baud Bandit's ANSI-emulation feature—I made it work. The procedure begins with setting the character mask to 255 in the Modem menu so IBM graphics characters aren't filtered out. In that same menu, you switch the screen to three bitplanes to make sure all the colors show up. Then, go to the Macro menu and change the font to one containing the IBM graphics character set.

I would guess you made your mistake with the IBM font. This is easy to do because the program gives no warning if it cannot use the font you have selected (because the file name is wrong, or the font file is missing or not in proper Amiga format)—it just substitutes the default. There are a couple of things to watch for when installing a PC graphics font. First, make sure the font is transferred correctly. If the font is called IBMFONT, and is eight pixels high, your FONTS: directory must contain a file called IBMFONT.font and a subdirectory called IBMFONT that contains a file called 8. Also, the font must contain all IBM graphics characters. Some public-domain fonts whose names contain the letters "IBM" have PC-style text characters, but do not include the full set with all the line and box characters.

Baud Bandit deserves neither credit nor blame for how its ANSI emulation is implemented. Any Amiga terminal program that uses the system's console device for keyboard input (and that includes most of them), automatically inherits that device's ANSI terminal emulation subset. Therefore, ANSI graphics can be displayed on almost any Amiga terminal program that allows an eight-color screen and lets you install a font containing IBM graphics characters. Even programs that do not have an explicit option for installing your own font, as Baud Bandit does, can work if you substitute the system font using FastFonts on Workbench 1.3.

—***Sheldon Leemon***

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TCRG-102 (MicroIllusions)
Ultra Design (Progressive)
SupraDrive with WordSync (Supra)

To comment on these, write Your Turn, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458, or call 800/441-4403, ext. 346 by 4/19. We would like to hear from you at any time concerning other just-released products. ■

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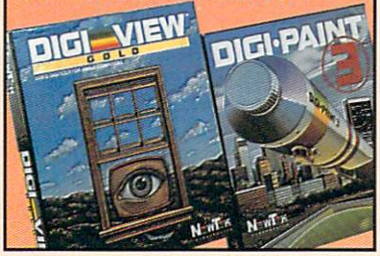
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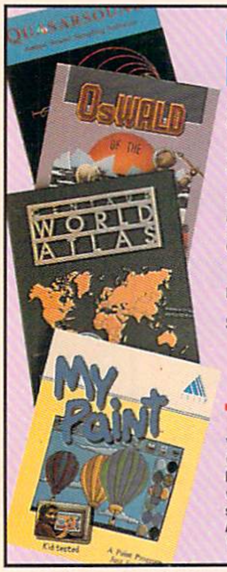
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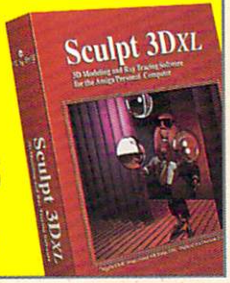
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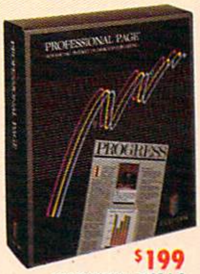
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A scanner in the hand is worth two in the bush.

Gallya Ornamented, Kooper Black, and Plaebill Fonts, a new line of professional fonts for use with PageStream (Soft-Logik), may be just the thing you are looking for to brighten up that well-written but otherwise mundane newsletter. Each contains a minimum of 184 characters. Dennis Palumbo (104 Barrymore Blvd., Dept. B, Franklin Sq., NY 11010, 516/535-7316) can help fill in the spaces. *RS #503.*

Long Distance Runner

IF YOU'RE IN the market for a turn-key hard-drive system, catch up with **File Runner**. The A2000 hard card comes with a $3\frac{1}{2}$-inch drive installed and formatted—just plug it in to autoboot with Kickstart 1.3 on board. For your A500 or A1000, the external version encloses one or two drives, comes with a power supply and a pass-thru adaptor with a bus driver. Choose either the heavy-duty or flat version, according to your needs. For pricing and configuration information, get in touch with Pre'spect Technics Inc. (PO Box 670, Station H, Montreal, Quebec, Canada H3G 2M6, 514/954-1483).

Pre'spect's **Alf 2.6** software update means new features for Alf-AF-SCSI controller owners: Add Flp lets you back up your hard disk to floppy and vice versa without an external drive; Frame Backup lets you copy the rigid boot block to a separate floppy, so if your hard disk crashes, you will not have to reformat. *RS #505.*

Blue Chip Tips

INVESTORS AND TRADERS, you can analyze stocks, options, commodities, and market indices with **MicroTrader** ($195). Update your portfolio either automatically from commercial data services or by keying in price quotations manually. Charts display highs, lows, closes, volumes, or complete market action. To measure relative strength to market or industry parameters, monitor momentum rates of change, and follow linear regression and price trends, invest a dime and call Micro-Active Inc. (7831 Bodinier Ave., Anjou, Quebec, Canada, H1K 1C2, 514/355-8503). *RS #504.*

And Then Some

EVEN BERGMAN FILMS begin with a **Title Page**. Your masterpiece can, too, with a professional titling package and brush manipulator by the same name. A titler, font manager, script viewer, effects editor, pattern editor, copper list modifier, and a slide-show maker are included. Title Page lets you load and save IFF pictures, supports ARexx, and provides a spare screen so you can create on one and test on another. The pattern and effects editors let you produce a slew of special effects. Begin on an even keel with the old master and set sail for New Dawn Technologies (2354 Cote St., Catherine, Montreal, Quebec, Canada H3T 1A9, 514/340-9244). *RS #506.*

Where in Europe is Carmen Sandiego? ($49.95). That is what you need to find out in the latest addition to the popular Carmen series. To assist in your sleuthing, a Crimestopper's Notebook, Factfinder's Database, and Rand McNally atlas complete the package. Pick up Car- ►

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- ☐ **#37 Business Programs**—Includes a label printer, a talking mail list manager, and an address book program.
- ☐ **#27 Amoeba Invaders**—Much better than *Space Invaders!*
- ☐ **#140 Virus Killers**—Everyone needs this disk. It's easy to detect and eliminate known viruses.
- ☐ **#115 Wordwright**—A great word processor!
- ☐ **#182 Six Pack**—A collection of two-player games including *Word Boggle, Word Scramble,* and *Hangman.*
- ☐ **#207 Sonix #2**—A collection of popular music hits including "Thriller" and "Grapevine."
- ☐ **#240 Chess**—See if you can beat your computer!

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THE BEST OF THE REST

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- ☐ **#122 Solitaire**—Two excellent solitaire games.
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- ☐ **#124 Milestone**—Computer version of *Miles Bournes.*
- ☐ **#125 Othello**—Try this great 3-D game.
- ☐ **#127 Wheel of Fortune**—Another excellent computer version of *Wheel of Fortune.* This one speaks!
- ☐ **#128 Space Games**—An Asteroids game and *Gravity War* make this a disk you don't want to miss!
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- ☐ **#139 Bull Run**—Great Civil War strategy game.
- ☐ **#142 Q-Bert**—A really fun version of the favorite arcade game. Plus lots of other great games.
- ☐ **#148 Boulder Dash**—A very popular game with excellent graphics and ascending levels of difficulty.
- ☐ **#151 MAXIT**—This is a math/strategy game that you can play against a friend or your computer.
- ☐ **#156 Fly Snuffer**—Score points by spraying flies with bug spray. Get even with those pesky critters!
- ☐ **#158, 159 Sinking Island II**—A great adventure game with graphics. The game has four map scenes, underground chambers, and much more. Written by a great Amiga programmer, our friend, Terry Fike. (2 Disks)
- ☐ **#161 Sorry**—Amiga version of the classic board game.
- ☐ **#162 Video Poker**—Like the casino poker machines.
- ☐ **#171 Escape from Jovi**—An exciting, fast-action arcade game with different levels and effects. Fantastic graphics and sounds. (Requires a Joystick)
- ☐ **#177 Kamikaze Chess**—Chess with a twist! You win by *losing* all your pieces. Play a friend or the computer.
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- ☐ **#195 Tiles**—Match the tiles to clear the screen. A game with nice graphics that is very addictive!
- ☐ **#210 Gametime**—Games to give you many happy hours. Includes *Super Breakout* and *Orbit,* a space game.
- ☐ **#216 Chinese Checkers**—Great color and graphics. Allows up to six human and computer players.
- ☐ **#223 Conquest**—A space strategy game. You battle against the computer to conquer and colonize planets.
- ☐ **#230 Dad Puzzle**—This graphic puzzle is a real brain teaser! I couldn't solve the puzzle, but I did enjoy the included solution, a slideshow with music!

MUSIC & SOUNDS

- ☐ **#18 Future Sound Demo**—A sample of digitized sounds including "The Wicked Witch," "Breaking Dishes," "Car Crash," and "Sea Gulls."
- ☐ **#77**—Turn your keyboard into 25 different musical instruments and play it like a piano!
- ☐ **#206 Sonix #1**—Great songs created with *Sonix.* Includes "Maniac" and "Let the Music Play."

MISC. APPLICATIONS

- ☐ **#110 Potpourri VI**—Among the included programs is *Amiga Spell,* a spell checker.
- ☐ **#134 Applications I**—Included are a mail label printing program and a grocery shopping list program.
- ☐ **#146 Calendar**—Excellent personal calendar and reminder. Keeps track of appointments, birthdays, etc.
- ☐ **#170 Bowling League Secretary**—Keeps all your league's records. Can print standings, averages, etc.

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- ☐ **#144 Christmas Animations**—Ten beautiful scenes.
- ☐ **#224 New Movie II**—A collection of short animations including Jessica (From *Who Framed Roger Rabbit*).

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- ☐ **#1 Norman Rockwell**—Seventeen beautiful Norman Rockwell paintings in a self-running slide show presentation.
- ☐ **#198 Space**—This disk includes a slideshow from NASA of the Space Shuttle and also a slideshow of planets.

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- ☐ **#97 Tutorial Disk I**—Full of info and programs for Amiga programmers and *Power Users.*
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- ☐ **#226 Assorted Tools**—Includes *Blanker 2* (a screen saver) and *FlameKey* (a password security utility).

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- ☐ **#235 Access 1.4**—Access any bulletin board with a modem and this program! Also includes *Pkax,* a file archiving utility.

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men's trail at Broderbund Software (17 Paul Dr., San Rafael CA, 94903-2101, 415-492-3200). *RS #517.*

KCS 3.0 and **Level II 3.0** sequencer upgrades are available from Dr. T's Music Software (220 Boylston St., Chestnut Hill, MA 02167, 617/244-6954). The stepped-up versions feature Multi-Program Environment (MPE) real-time data sharing and interaction, plus a MIDI mixing program, improved synchronization and chase time, and controller chasing. For pricing and a complete list of features, tune in to Dr. T's.

For beginning electronic mucisians, Dr. T's **Tiger Cub** ($99) offers 12-track tape-recorder-style sequencing, and the Quick Score module for automatic scoring, transcription, and single-track or full-score printing. MPE capabilities, a conductor track with real-time tempo drawing, and multiple time signatures are also included. *RS #550.*

Natural Graphics (PO Box 1963, Rocklin, CA 95677, 916/624-1436) has revised its fractal landscape generator and released **Scene Generator 2.04** ($39.95) for use as painting and animation backgrounds or just for fun. The program's revamped landscape calculations accompany a save option. You can save images in 320×200 (non overscan), 352×240 (overscan for use with Electronic Arts's DeluxePaint II), or 384×240 (overscan commonly used for video). *RS #551.*

MicroLeague Sports introduces those beefy World Wrestling Federation characters to Amiga gamesters. **WWF MicroLeague Wrestling** ($39.95) sports simulation offers a strategic challenge. Watch your favorite WWF stars act out your instructions and see actual WWF footage of interviews and ringside commentaries. Hulk, Roddy, and the gang await your command at MicroLeague Sports Association (2201 Drummond Plaza, Newark, DE 19711-5711, 302/368-9990). *RS #513.*

If you would rather spend more time on applications than installing programs on your hard drive, take a look at **Hard Disk Slammer** ($34.95) from Zammoth Software (3533 W. Fourth, Mansfield, OH 44903, BBS line: 419/529-8422). The utility promises to speed and simplify the process, and you need not be familiar with DOS to take advantage of it, says Zammoth. *RS #552.*

New International Version Bible scholars, take note of two new study tools: **The Context Bible NIV** formatted for use with Thinker hypertext program (Poor Person Software) lets you jump anywhere within the text by clicking on book, chapter, and verse. You can insert your own notes and link them to references, outlines, and charts. Neuralink, PO Box 16311, Lubbock, TX 79490, 806/793-0423. *RS #553.*

EasyScript!'s (10006 Covington Dr., Huntersville, AL 35803, 205/881-6297) **Bible Reader! NIV** ($74.95) offers Bible text files in ASCII format, and features print, save, and search functions. *RS #507.*

Step into the cockpit of A-10 Thunderbolt II, an indestructible ground support plane, in Dynamix's action simulation **A-10: Tank Killer** ($49.95). Joined by a wise-cracking co-pilot, ground troops, and your C.O. back at the base, you intercept radio messages and face hidden challenges, distress calls, and surprise attacks in the midst of a raging battle.

You are **David Wolf: Secret Agent** ($49.95)—chosen to infiltrate Viper, the international crime force holding the US stealth fighter and its designer hostage. You must battle the Viper forces in hang-glider combat, car chases, and skydiving free-fall. Get your orders from Dynamix HQ (99 W. 10th Suite 337, Eugene, OR 97401, 503/343-0772) for either Tank Killer or David Wolf. *RS #516.*

Your Amiga can emulate a CCITT Group III fax machine with a little help from MichTron (3285 Lapeer Rd. W., Auburn Hills, MI 48075, 313/377-8998). **Fast Fax** ($699.95), which connects through the RS-232C port, features a 1000 address phone book, an IFF to Epson Converter, and lets you view incoming pages on screen before printing. *RS #508.*

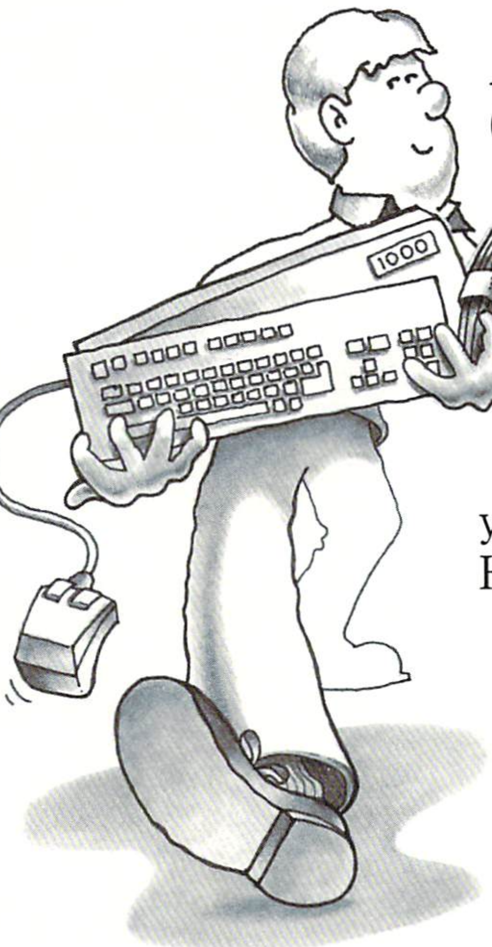
Animate your DigiPaint 3 (NewTek) HAM images with **Digimate 3** ($39.95) from Mindware (110 Dunlop St. W., Box 22158, Barrie, Ontario, Canada L4M 5R3, 705/737-5998). The program, which requires ARexx to operate, allows you to open, modify, and play Anim format animations interactively. With a click of the mouse, Digimate 3's ANIM processing capability formats animations automatically so you can convert your entire creation between color and black and white, HAM and overscan, or DeluxePaint III (Electronic Arts) animation and VideoScape (Oxxi) format. *RS #510.*

In **Day of the Viper** ($49.95) you pilot the attack robot Viper-5 through a 25-level defense installation controlled by a hostile cyborg. Once inside, you must locate and reactivate the installation's security defense. To overthrow the cyborg and his hostile followers, contact Accolade (550 S. Winchester Blvd. Suite 200, San Jose, CA 95128, 408/985-1700). *RS #515.*

Lead the eight Companions of the Lance on an action-filled quest to rescue the princess in **Dragons of Flame** ($39.95). Ally with mysterious elves, sneak through Sla-morian caves, and free captives of evil dragons. Begin this Strategic Simulations adventure by contacting Electronic Arts (1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171, 800/245-4525. *RS #519.* ■

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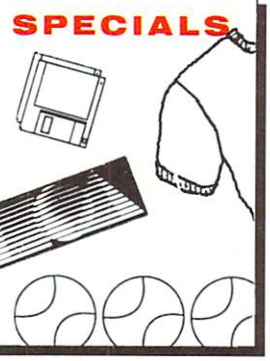
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HORS D'OEUVRES

Hints, tips and techniques from your fellow Amiga users.

Compiled by Tim Walsh

PRINT IT

If you've longed for an option that directs text files to the printer from the Shell in AmigaDOS 1.3, I have the solution. Type the following script file into a text editor and save it to your Workbench's S: directory under the name Print.

```
.key job,opt1,opt
IF "<job>" EQ " "
  QUIT
ELSE
  COPY <job> PAR:
  IF "<opt>" GT "noff"
    ECHO > PAR: "^L" NOLINE
  ENDIF
ENDIF
```

(If you have a serial instead of a parallel printer, insert SER: for PAR:.) Finally, add the line below, including the trailing space at the end, to your startup-sequence:

```
ALIAS PRINT C:RUN >NIL: C:
EXECUTE S:PRINT<space>
```

To print a text file from the Shell, now use the syntax: PRINT <filename>.

Lou Williams
Garner, NC

TRASH COLLECTOR

Everyone wishes handling the trash was more pleasant. On the Amiga it can be. The CLI's ALIAS command lets you make some shortcuts for putting files in the Trashcan, checking its contents, and emptying it. Simply add the following lines to your startup-sequence with a text editor.

```
ALIAS Trash RENAME [ ] AS
sys:Trashcan/[ ]
  ALIAS Empty DELETE sys:
Trashcan/#? ALL
  ALIAS Sift DIR sys:Trashcan
```

Once you've saved the file, you can put files into the Trashcan by typing TRASH <filename>. To see the contents of the Trashcan, enter SIFT. Finally, to permanently dispose of all the trash, type EMPTY.

Paul Harker
Grand Rapids, MI

TICK TOCK TIP

If your Amiga lacks a battery backed-up clock and you get frustrated having to access Preferences to set the date, just add these lines to your startup-sequence right before the ENDCLI >NIL command:

```
DATE
ECHO " "
DATE ?
ECHO " "
```

Depending on your system configuration, it may or may not display the system's date and time when you boot. Either way, it will prompt you to enter the correct date and time. You'll find this method will save you time from the moment you start using it.

Arthur Spague
Muskego, WI

ALT-ERED PRO

Having problems loading ASCII files into ProWrite (New Horizons Software)? Here's all there is to it:

1. Activate ProWrite.
2. Highlight the Open option in the Project menu.
3. Before releasing the mouse button, hold down the Alt key.
4. Release the mouse button and all the files on the current directory will be displayed. At this point, you can select any text file desired.

While it's mentioned in passing on page 50 of the version 2.5 documentation, many people overlook this important option.

William J. McCollough
Alexandria, VA

LHARC EFFICIENCY

The article "Bring Home The PD Gold" (February '90, p. 50) mentioned that Paolo Zibetti's LHARC 1.00 compresses better than ARC and ZOO. I agree. After running LHARC on a disk full of mixed ARC and ZOO files, I managed to free up 171 disk blocks!

Anyone operating a BBS would be wise to convert existing ARC and ZOO archived files to LHARC format. Not only will you save precious hard disk space, you'll also reduce the amount of time users require to download files.

Edward A. Brown
Long Beach, CA

Editor's Note: To find the latest programs for converting existing files to LHARC format, visit the Amiga Tech Forum on CompuServe (GO AMIGATECH). Several files are available for downloading, such as C2L.LZH (contains Convert2Lharc and its documentation) and LZH.REX, which is a script file. Both are useful in automatically converting entire disks of archived ARC, ZOO, ZIP and PAK files to LHARC format.

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive an* AmigaWorld *surprise gift.* ■

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By Louis R. Wallace

3-D SHARING

Q: *I upgraded from Oxxi's VideoScape 3D to Impulse's Turbo Silver 3.0. I have a large collection of 3-D objects that I created with VideoScape and want to use them in Silver. Is this possible?*

L. Blackburn
Atlanta, GA

A: The answer is maybe, depending on the objects. InterChange ($49.95) from Syndesis (N9353 Benson Rd., Brooklyn, WI 53521, 608/455-1422) converts objects among several 3-D programs, including Silver and VideoScape. The problem is that VideoScape (especially version 2.0) has features that do not readily convert to the other packages, so not all objects will convert properly. To solve the problem, Syndesis recently released a new InterChange module that supports the VideoScape 2.0 format. If you are using VideoScape 2.0, make sure you get the new module.

WHAT A VIEW?

Q: *I own a A2500 equipped with Commodore's 68030 board, and I have problems using Digi-View 4.0. I keep getting a "NO VIDEO SIGNAL PRESENT" error message. I tried two sources of video input (a camcorder and a VCR) and got the same results. Thinking it was the 68030, I rebooted in 68000 mode and tried again, with the same results. I even replaced my 8520 CIA chips, but that didn't help either. My printer works fine, so I doubt there is anything wrong with my parallel port. Can you shed some light on the problem?*

G. Kushlan
Tooele, UT

A: My A2500/30 and Digi-View work fine together, so I don't think the problem is Commodore's 68030. One possibility is the cables between your video source and Digi-View. Try replacing them, and see if the new ones make a difference.

When I first got Digi-View Gold, I experienced the same problem you describe, although it happened erratically. In my case, it was caused by the Digi-View unit not fitting completely snug into the parallel port. The weight of the coax cable I was using caused Digi-View to sag a little, just enough to keep it from working. The fix was easy: I glued a quarter-inch of cardboard to the bottom of the Digi-View to reinforce it enough to stay firmly in place.

Another possibility you should consider is that your Digi-View could be defective. If possible, try it on another Amiga. If it doesn't work, contact NewTek about a replacement.

Also, in the earliest copies of Digi-View 4.0, the Dynamic HiRes mode had timing problems with 68030-equipped Amigas. If your software doesn't display Dynamic HiRes correctly, you will need an upgrade from NewTek.

NO PREFERENCES

Q: *I am the unhappy owner of a printer without a Preferences printer driver. If I had the C source code for an existing driver, I might be able to adapt it to my printer. Where can I find printer driver source code?*

J. Gilbraith
Atlanta, GA

A: First, make sure you use a Workbench 1.3 driver as an example. A good place to find the code is in the latest edition of the *Amiga ROM Kernel Reference Manual: Libraries & Devices* ($34.95, ISBN number 0-201-18187-8). In addition to driver source code, it contains a wealth of information on programming all aspects of the Amiga. You can order the book by calling Addison-Wesley at 800/447-2226.

OPEN WIDER

Q: *I run my A2000 Workbench in 640×400 interlaced mode instead of the normal 640×200. During startup the Amiga opens the DOS window at the normal 640×200 size even though the screen is 640×400. I would like my starting DOS window to be full-screen size automatically. Could you explain how to do it?*

A. Moschella
Fort Ord, CA

A: I, too, use the interlaced 640×400 screen for Workbench and have a very simple solution. Besides opening the window automatically as I want, it makes the Shell the default DOS window and does not use the older CLI. The trick I use is to add these two statements to the end of my startup-sequence:

```
RUN newshell "NEWCON:0/0/640/
  380/Big Shell"
ENDCLI
```

Via the RUN command, this creates a new task that launches a Shell window defined exactly the way I want it. While that is occurring, the multitasking Amiga begins the next line of the script file, the ENDCLI instruction. The result is that the new full-screen window is created just as the old window is closed, giving me the results I wanted. Timing is critical here, however, so make these lines the final ones in your startup-sequence and don't insert any commands between them. ■

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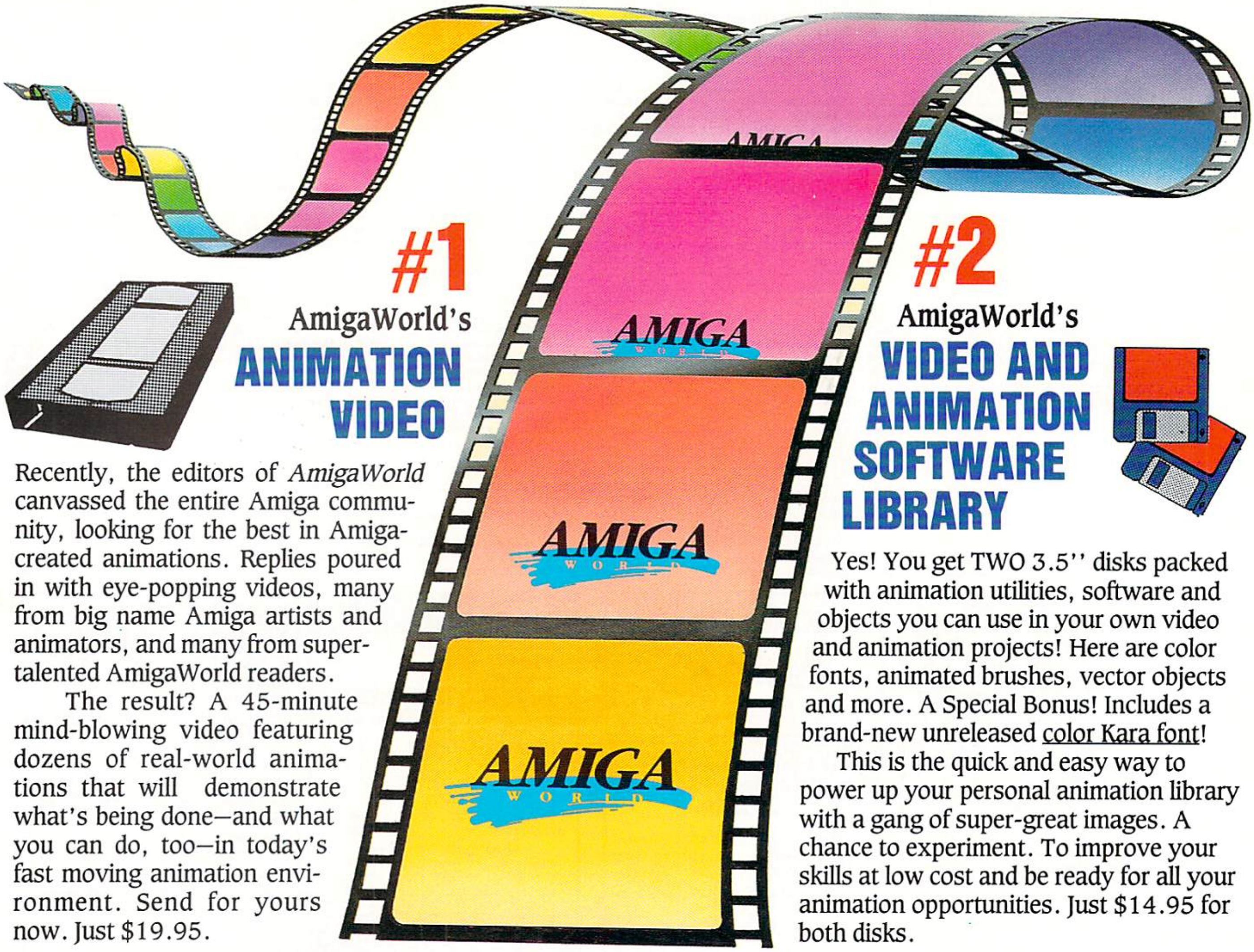
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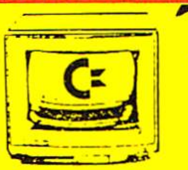
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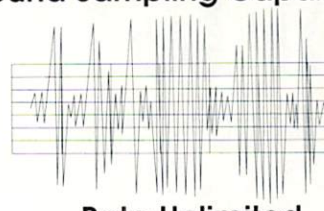
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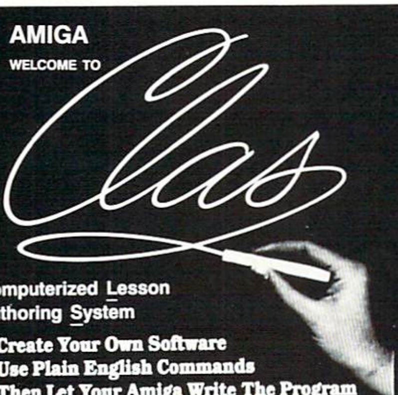
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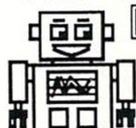
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LAST LICKS

Ear to the Wall

Something New and Something Blue An apology to those Dr. T's Music Software (220 Boylston St., Chestnut Hill, MA 02167, 617/244-6954) fans who may have missed mention of **The Phantom** in the March '90 Hardware Buyers Guide. The misplaced device, which inadvertently landed in the Memory section, allows compatible MIDI sequencers to sync with SMPTE, is compatible with any A2000-series Amiga, connects at the serial port, and retails for $300. The Phantom includes two switchable MIDI inputs, four parallel outputs, and can function as a stand-alone MIDI interface.

Also, the **Model-A MIDI Interface**, which retails for $75, was regrettably neglected. It provides MIDI capabilities to any Amiga, and has one in, two outs, a serial pass-through port, and SMPTE in and out.

Dr. T's promised **Copyist DTP** is shipping. The long-awaited desktop music publishing, score-editing, and transcription program features Adobe Sonata music fonts and a utility to convert Copyist files to IFF and EPS formats.

Gold Digging Gold Disk (PO Box 789, Streetsville, Mississauga, Ontario, Canada L5M 2C2, 800/387-8192, 416/828-0913) is shipping its promised spreadsheet, **Home Office Advantage**, and **Outline Fonts**, a package that brings resizeable Compugraphic Typefaces into any word processing, DTP, or video-titling program. Other Gold Disk projects in the works include an upgrade to **Professional Draw**, **Freeform**, a hypermedia personal information manager, and the multimedia presentation generator, **Showmaker** (see Jan. '90).

CMI Update The newly-formed Digifex (610 Main St., Oregon City, OR 97045, 503/656-8818) is offering support for peripherals manufactured by the defunct Creative MicroSystems Inc. (CMI). A company spokesman recently told *AmigaWorld* that Digifex is "more than happy to provide service to CMI customers with defective CMI products" and has been doing so since January 1, 1990.

A Toast New Horizons' philosophy extolls professionalism in the ranks of third party developers according to a visiting company representative. To expect the business world to embrace the Amiga is ludicrous unless "bug-free guaranteed" software is made available, he implied.

Live Long and Prosper Arthur C. Clarke, author of *2001: A Space Odyssey*, recently endorsed Virtual Reality Lab's (2341 Ganador Court, San Luis Obispo, CA, 805/545-8515) **Distant Suns**. We will see his opinions in future ads for the product.

Comrades. . . Amigas Well-known Soviet programmer Alexey Pajitnov was quoted in January 30's *Boston Globe* saying that he was "not especially interested in computer brands, or the latest technical whizbang. . . (but) maybe I would like to have an Amiga." Pajitnov's **Tetris** and subsequent **Welltris**, a 3-D version of the popular game marketed by Spectrum Holobyte (2061 Challenger Dr., Alameda, CA 94501, 415/522-0107) gained him international recognition.

On Queue At the last National Association of Music Merchants (NAMM) show in Anaheim, a Digital Creations representative was overheard reporting a hold on **Living Color** and **V Machine** products. Our sources have told us the wait for the **Infinity Machine** from M.A.S.T. could continue through most of 1990.



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DOCTOR, LAWYER, EDITOR-IN-CHIEF. . .

Most people nowadays seem to either own or use computers. Some people are even pretty good at it.

Despite all this talent, adults only scratch the surface of their computer's abilities. To really learn what your computer is capable of, you must put a baby in front of it. Preferably a real young one.

You see, most computer programs include a feature called keyboard shortcuts. Hitting an obscure combination of keys launches the computer into a particular task. Hitting several combinations sets off any number of tasks.

Adults are afraid to hit keys they aren't supposed to hit. There is that fear that you will lose or break something. My 15-month old daughter does not share that fear.

One day Lauren sat on my lap in front of the computer. Without even looking at the keys, she began to pound on the keyboard. One elbow held down the ALT key while the rest of her body hit everything else. My computer did things I had never seen before. Paragraphs cartwheeled, then shrunk, then grew, then disappeared. Strange messages appeared, and then were covered up by new things I didn't recognize. And this was an IBM PC for gosh sakes.

Then it crashed. Lauren didn't care. She was still pounding on the keyboard, oblivious of the havoc.

I have a new computer now. It's an Amiga. Whenever I show it to someone, I bring Lauren over. After all, I want them to see what this machine is really capable of. ***—Doug Barney***

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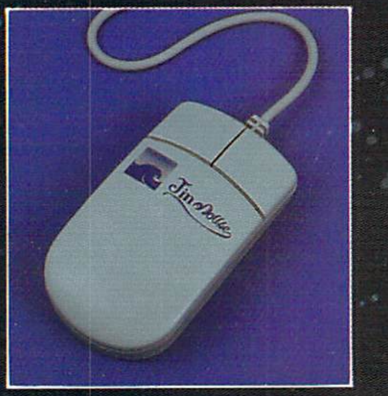
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